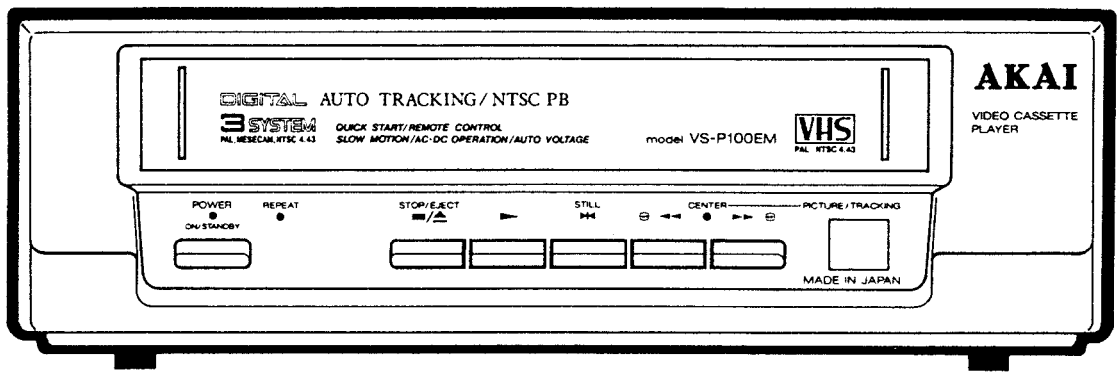
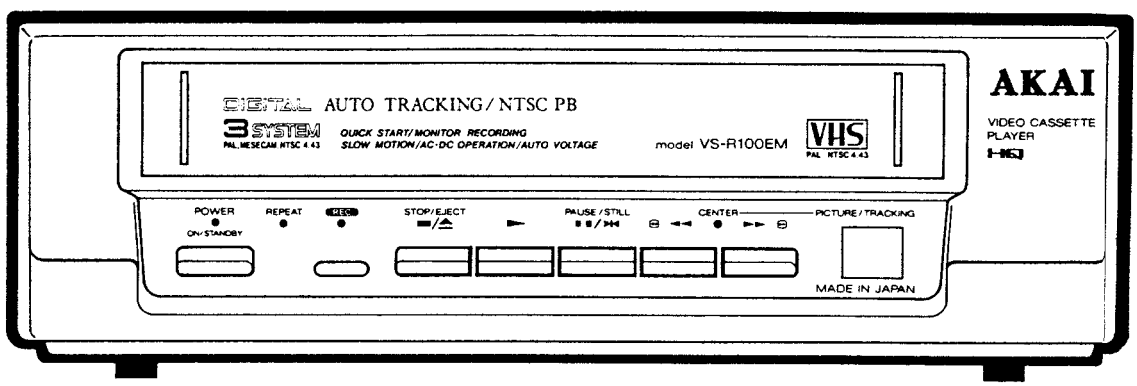
VS-P100EM

AKAI SERVICE MANUAL



VHS
PAL NTSC4.43



VHS HQ HIGH QUALITY
PAL NTSC4.43

MODEL VS-R100EM

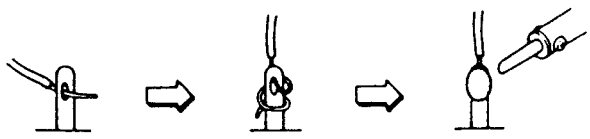
VIDEO CASSETTE PLAYER

MODEL VS-P100EM
MODEL VS-R100EM/EDG

★SAFETY INSTRUCTIONS

PRECAUTIONS DURING SERVICING

1. Parts identified by the ⚠ (*) symbol are critical for safety. Replace only with parts number specified.
2. In addition to safety, other parts and assemblies are specified for conformance with such regulations as those applying to spurious radiation.
   These must also be replaced only with specified replacements.
   Examples: RF converters, tuner units, antenna selector switches, RF cables, noise blocking capacitors, noise blocking filters, etc.
3. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads
4. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers (Insulating barriers)
   4) Insulation sheets for transistors
   5) Plastic screws for fixing micro switch (especially in turntable)
5. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.), wrap ends of wires securely about the terminals before soldering.



6. Observe that wires do not contact heat producing parts (heat sinks, oxide metal film resistors, fusible resistors, etc.).
7. Check that replaced wires do not contact sharp edged or pointed parts.
8. Also check areas surrounding repaired locations.
9. Use care that foreign objects (screws, solder droplets, etc.) do not remain inside the set.

SAFETY CHECK AFTER SERVICING

After servicing, make measurements of leakage-current or resistance in order to determine that exposed parts are acceptably insulated from the supply circuit.
The leakage-current measurement should be done between accessible metal parts (such as chassis, ground terminal, microphone jacks, signal input/output connectors, etc.) and the earth ground through a resister of 1500 ohms paralleled with a 0.15 μF capacitor, under the unit's normal working conditions.
The leakage-current should be less than 0.5 mA rms AC.
The resistance measurement should be done between accessible exposed metal parts and power cord plug prongs with the power switch (if included) "ON". The resistance should be more than 2.2 Mohms.

MAKE YOUR CONTRIBUTION TO PROTECT THE ENVIRONMENT

Used batteries with the ISO symbol for recycling as well as small accumulators (rechargeable batteries), mini-batteries (cells) and starter batteries should not be thrown into the garbage can.
Please leave them at an appropriate depot. All other household batteries can be thrown out with the household waste.

★SPECIFICATIONS

MODEL VS-R100EM/EDG

Format	VHS standard (PAL, MESECAM)
Video recording system	Rotary, slant azimuth two-head helical scan system
Rotary heads	2 video heads
RF output	
EM	System B type modulation VHF ch 3, 4 switchable (preset ch 4)
EDG	System K/G type modulation UHF ch 30–39 adjustable (preset ch 36)
Recording (line input)	PAL, SECAM (recorded as MESECAM)
Playback (line output)	
EM	PAL, SECAM (MESECAM Tape) NTSC 4.43 (NTSC Tape) Simulated PAL (NTSC Tape)
EDG	PAL, SECAM (MESECAM Tape)
Video	
Line input level	0.5 to 2.0 Vp-p / 75 ohms, unbalanced
Line output level	1.0 Vp-p / 75 ohms, unbalanced
S/N ratio	More than 43 dB
Horisontal resolution	More than 250 lines
Audio	
Line input level	- 6 dBs / 50 k ohms, unbalanced
Line output level	- 6 dBs / 1 k ohms, unbalanced
S/N ratio	More than 40 dB
Frequency response	70 to 10,000 Hz
Recording/playback time	
EM	CCIR 240 min. with E-240 cassette NTSC (playback only) 160 min. with T-160 cassette
EDG	CCIR 240 min. with E-240 cassette
Tape speed	
CCIR	23.39 mm/sec.
NTSC	33.35 mm/sec.
Quick finder	
CCIR	Approx. 5 or 9 times normal speed
NTSC	Approx. 5 or 7 times normal speed
FF, REW time	Approx. 5 min. with E-180 cassette
Power requirements	
EM	110 to 240 V, 50 / 60 Hz (Auto Voltage)
EDG	220 V AC, 50 Hz
Power consumption	16 W
Opetating temperature	5°C to 40°C
Dimensions	280 (W) 83 (H) 334 (D) mm
Weight	
EM	4.2 kg
EDG	4.1 kg

Standard accessories

Remote control unit (RC-V21E)	1
Batteries for remote control	2
RF antenna cable	1
AC power cord	1
Operator's manual	1

MODEL VS-P100EM

Format	VHS standard (PAL, MESECAM) Rotary, slant azimuth two-head helical scan system
Rotary heads	2 video heads
RF output	System B type modulation VHF ch 3, 4 switable (preset ch 4)
Playback (line output)	PAL, SECAM (MESECAM Tape) NTSC 4.43 (NTSC Tape) Simulated PAL (NTSC Tape)
Video	
Line output level	0.5 to 2.0 Vp-p / 75 ohms, unbalanced
S/N ratio	More tham 43 dB
Horisontal resolution	More than 250 lines
Audio	
Line output level	- 6 dBs / 1 k ohms, unbalanced
S/N ratio	More than 40 dB
Frequency response	70 to 10,000 Hz
Playback time	
CCIR	240 min. with E-240 cassette
NTSC1	60 min. with T-160 cassette
Tape speed	
CCIR	23.39 mm/sec.
NTSC	33.35 mm/sec.
Quick finder	
CCIR	Approx. 5 or 9 times normal speed
NTSC	Approx. 5 or 7 times normal speed
FF, REW time	Approx. 5 min. with E-180 cassette
Power requirements	110 to 240 V, 50 / 60 Hz (Auto voltage)
Power consumption	16 W
Opetating temperature	5°C to 40°C
Dimensions	260 (W) 83 (H) 334 (D) mm
Weight	4.1 kg

Standard accessories

Remote control unit (RC-V20E)	1
Batteries for remote control	2
RF antenna cable	1
AC power cord	1
Operator's manual	1

0 dBs = 0.775 V

* For improvement porposes,specifications and design are subject to change without notice without notice.

★INFORMATION

SYMBOLS OF MODEL NAME FOR PRIMARY DESTINATION

Symbol indicates the destination of the units as listed below.

Symbol	Power Classification	Principal destination	TV System	
			Color	Broadcast
EA	S	Australia	PAL	B,G
ED	E	China	PAL	D
EDG	E	East Europe	PAL	D,K
EDI	E	China, Hong Kong	PAL	D,K,I
EG	E	Spain, Northern Europe, Other	PAL	B,G
	Y7	Saudi Arabia		
EK	B	U.K.	PAL	I
	Y1	Hong kong		
EM	E	Middle East	PAL	B,G
	Y7	Saudi Arabia		
EO	E	Holland, Switzerland, Northern Europe	PAL	B,G
	V	Italy		
EOH	E	Holland, Belgium	PAL	B,G
	V	Italy		
EOG	V	Germany	PAL	B,G
ES	E	South Africa, Ireland, Hong kong	PAL	I
EV	E	South-East Asia	PAL	B,G
	U	Middle East, South-East Asia		
	Y1	New Zealand		
	Y7	Saudi Arabia		
EZ	S	New Zealand	PAL	B,G
EGN	E	Middle East	PAL,NTSC	B,G
	Y7	Saudi Arabia		
S	E	France	SECAM	L
SK	E	Latin America, Oceania, SECAM-OIRT	SECAM	K,K1
SEG	E	France, Switzerland	SECAM,PAL	L,B,G
U	A	U.S.A.	NTSC	M
	C	Canada		
UM	U	Latin America	NTSC	M
J	J	Japan	NTSC	M

COLOR SYSTEM OUTPUT MODE SELECTION (EM ONLY)

Once the VCR's power cord is plugged in, the red power indicator will light and the REW ◄ indicator will flush. At this point the VCR can be set to the NTSC → PAL color system output mode or the NTSC 4.43 color system output mode.

Select the NTSC → PAL mode for viewing NTSC or PAL/MESECAM video tapes on a PAL system TV.

Select the NTSC 4.43 mode for viewing NTSC tapes on a multi-system TV that includes the NTSC 4.43 mode.

Setting the VCR to the NTSC → PAL mode:

1. Plug the VCR's power cord in.
   The red power indicator will light and the REW ◄ indicator will flush.
2. Press the POWER button to turn the VCR power on.
   The VCR is now set to NTSC → PAL mode.

Setting the VCR to NTSC 4.43 mode:

1. Plug the VCR's power cord in.
   The red power indicator will light and the REW ◄ indicator will flush.
2. Press the FF ►► button.
   The FF ►► indicator will flush.
3. Press the POWER button to turn the VCR power on.
   The VCR is now set to the NTSC 4.43 mode.

NOTE:

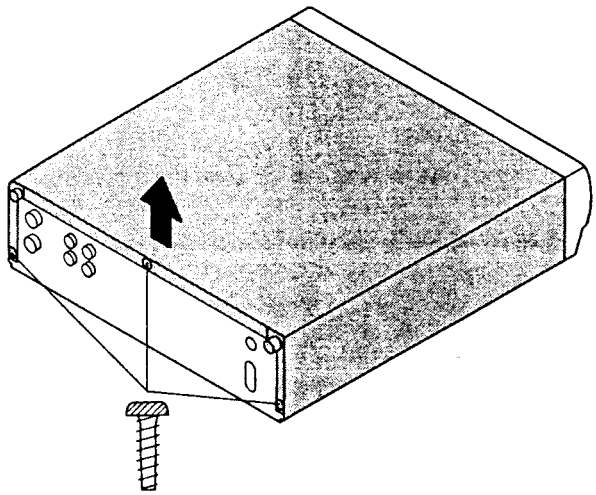
- If you have made a mistake or wish to change the color system mode, first unplug the power cord and repeat the appropriate setting procedure.
- The selected color system mode is retained in the VCR's memory until the power cord is unplugged.
  Power failure will also cancel color system.

I. DISASSEMBLY

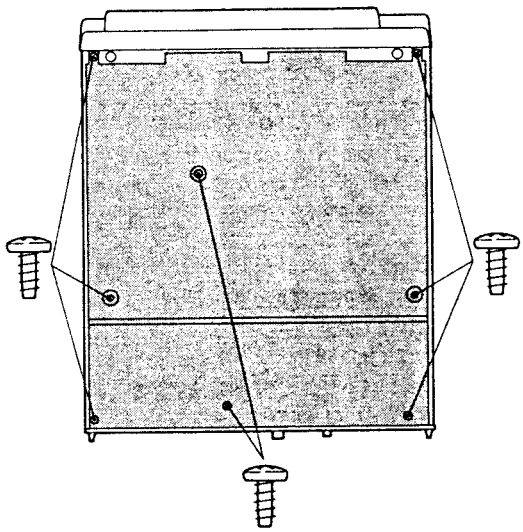
In case of trouble, etc. necessitating dismantling, please dismantle in the order shown in the illustrations.
Reassemble in the reverse order.
When reattaching the FRONT PANEL, hold the cassette loading slot door in the upright (open) position.

* Illustrations of model VS-R100EM are employed here.

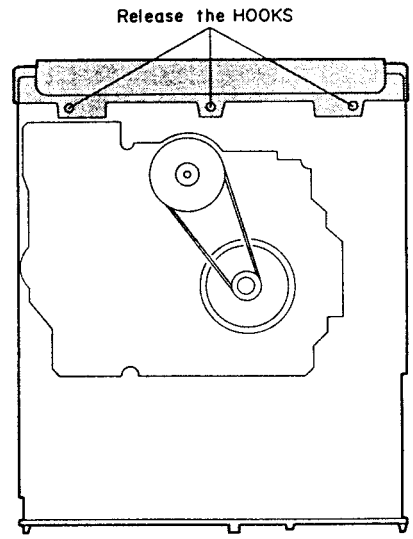
1. Removal of UPPER COVER

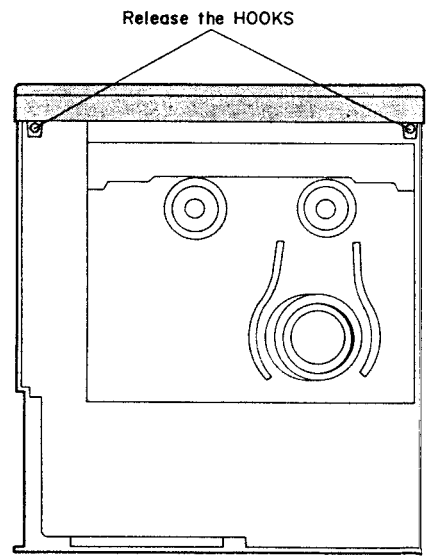


2. Removal of BOTTOM COVER



3. Removal of FRONT PANEL





II. PRINCIPAL PARTS LOCATION

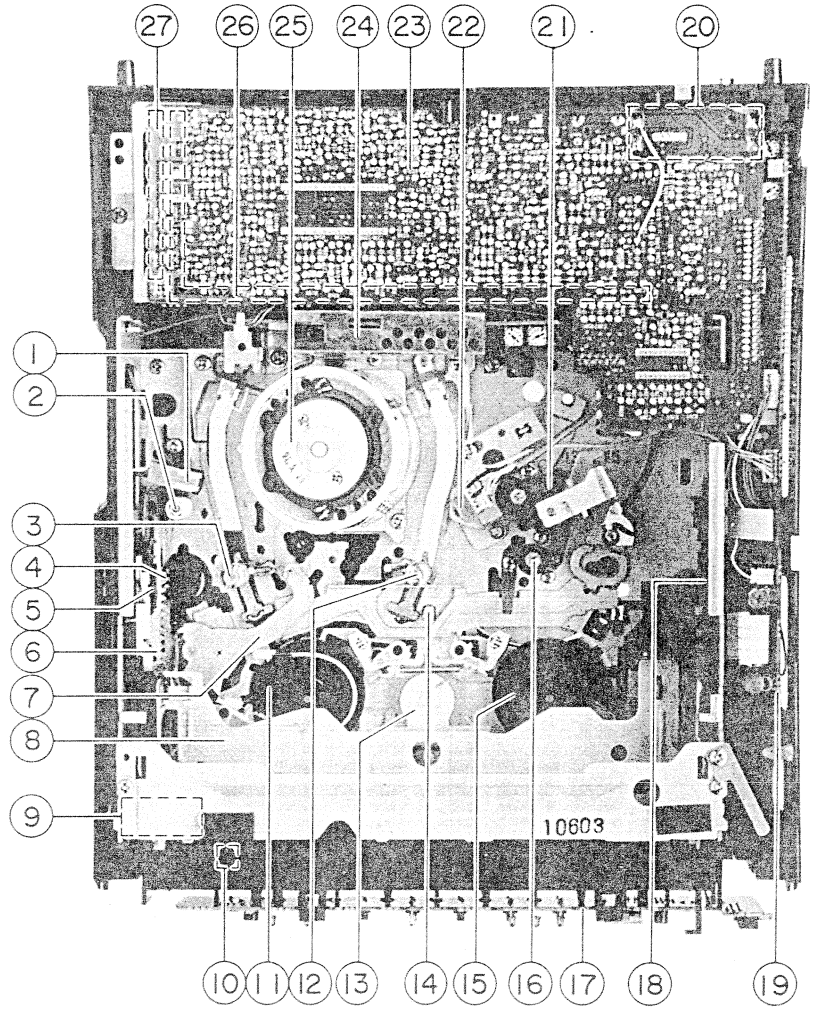


Fig. 2-1 Top view

1. FULL TRACK ERASE HEAD (VS-R100 ONLY)
2. SUPPLY TAPE GUIDE
3. SUPPLY LOADING LEADER
4. FRONT LOADING GEAR
5. SENSOR (S) PCB (END SENSOR)
6. FRONT LOADING SLIDER
7. TENSION ARM
8. CASSETTE LOAD BLK
9. LOADING MOTOR
10. REC SAFETY SWITCH (VS-R100 ONLY)
11. SUPPLY REEL TABLE
12. TAKE UP LOADING LEADER
13. IDLER PART
14. SENSOR LED
15. TAKE UP REEL TABLE
16. CAPSTAN MOTOR
17. OPERATION PCB
18. SENSOR (T) (START SENSOR)
19. CONTROL / AUDIO PCB
20. RF CONVERTOR UNIT
21. PINCH ROLLER
22. S.ERASE (VS-R100 ONLY)/AUDIO/CONTROL HEAD
23. VIDEO PCB
24. PRE AMP PCB
25. VIDEO HEAD DRUM BLOCK
26. POWER SUPPLY PCB
27. DC JACK PCB

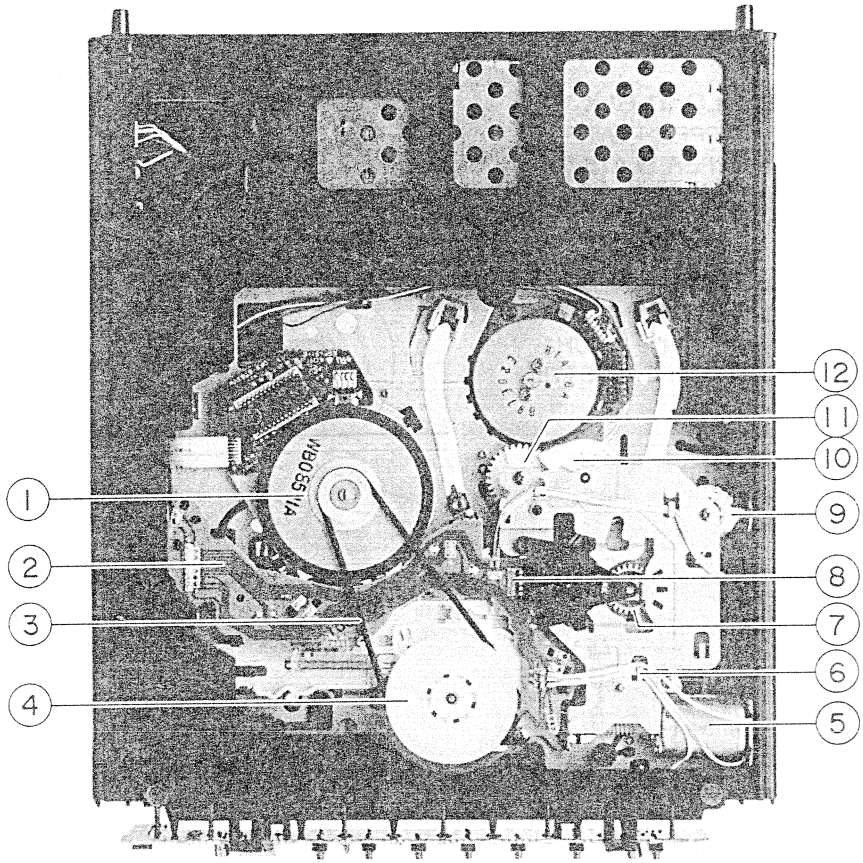


Fig. 2-2 Bottom view

1. CAPSTAN MOTOR BLOCK
2. SENSOR PCB
3. CAPSTAN BELT
4. CLUTCH DISK PART
5. LOADING MOTOR
6. LOADING DRIVE BLOCK
7. CAM SLIDER GEAR
8. MODE SELECT SWITCH
9. FRONT LOADING GEAR
10. TOGGLE (S) GEAR BLOCK
11. TOGGLE (T) GEAR BLOCK
12. DRUM MOTOR BLOCK

3-2.REMOVAL OF THE SENSOR PC BOARD

* Before proceeding with removal of the SENSOR PCB the loading mechanism must be set to the "unloaded" position (the position where the CAM SLIDER GEAR's groove mark is visible through the hole of the MODE SELECT SW.) as shown in Fig. 3-4.

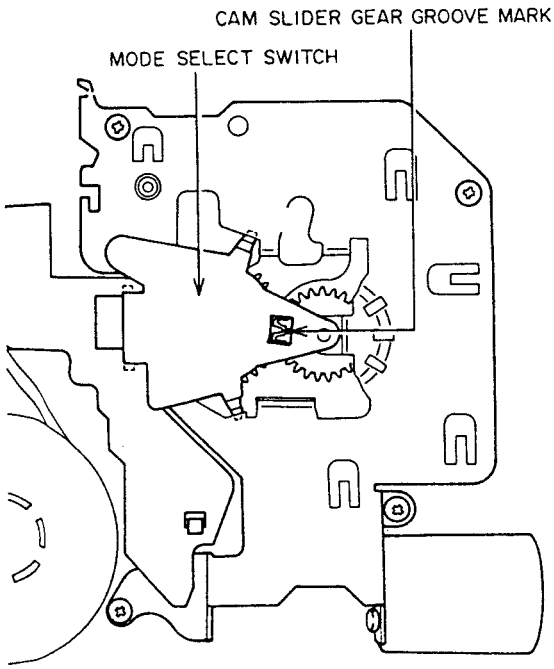


Fig. 3-4

To set the loading mechanism to the "unloaded" position, proceed with one of the following 1) or 2) procedures.

1) Insert a video cassette tape which you no longer need. Once the tape has been loaded or has entered the "play" mode press the POWER button to turn the power off. Disconnect the AC power plug from the AC socket after the cassette tape has been unloaded.
2) Remove the UPPER PLATE, FRONT GUIDE and CASSETTE LOAD BLK. (Refer to 3-1-1. Removal of the CASSETTE LOAD BLK.)
   Plug in the AC power cord. The LOADING ARM BLK will move backward (the cassette load BLK will be in the down position) and forward (the cassette load BLK will be in the eject position) continuously.
   With your fingers, cover and hold both SENSOR (S) and SENSOR (T) at the same time when the LOADING ARM BLK is in the backward position. The unit will enter the "play" mode without the cassette tape.
   While covering both sensors, press the "POWER" button. The unit will now enter the "tape unloaded" position. Release your fingers from the sensors, and disconnect the AC power plug from the AC power socket.

3-2-1. Removal of the MODE SELECT SWITCH

1) Release the two Ⓐ stoppers as shown in Fig. 3-5.

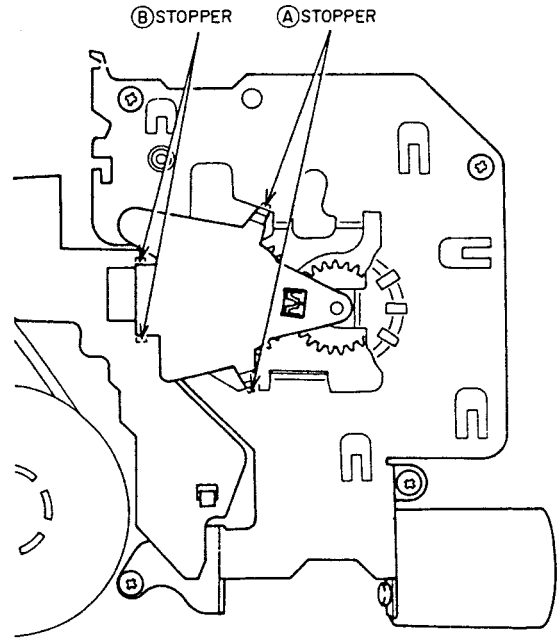


Fig. 3-5

2) Release the two Ⓑ stoppers carefully while pulling up the MODE SELECT SWITCH. Then remove the MODE SELECT SWITCH. (Do not damage the pins of the MODE SELECT SWITCH or the connector P1 on the SENSOR PCB).

3-2-2. Removal of the SENSOR PC Board

1) Disconnect the connector P404 on the CONTROL/AUDIO PCB.
2) Remove the capstan belt.
3) Release the Ⓐ , Ⓑ and Ⓒ stoppers as shown in Fig. 3-6. Then remove the SENSOR PCB.

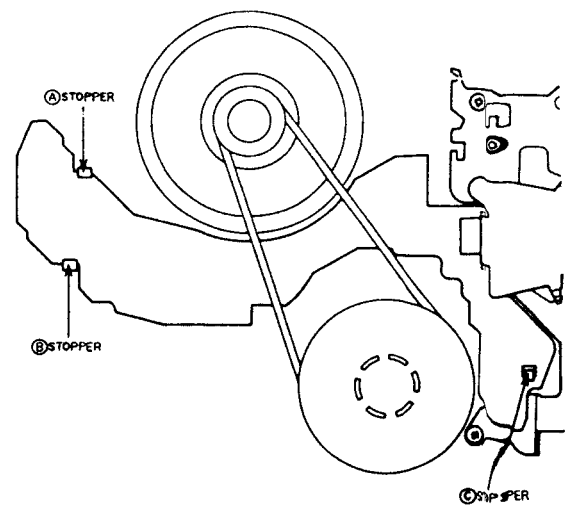


Fig. 3-6

3-3.REMOVAL OF THE LOADING DRIVE BLK

Set the loading mechanism at the "unloaded" position as well as 3-2 (REMOVAL OF THE SENSOR PC BOARD). However this time, to avoid damaging the tape and mechanical parts, refer to 3-2, *(2) only.

1) Remove the MODE SELECT SWITCH in the same manner as 3-2-1 (Removal of the MODE SELECT SWITCH).
2) Unhook the five wires (VS-R100 model) from each tab (four wires for the VS-P100 model). Two wires from the SENSOR (S), two wires from the LOADING MOTOR and one wire from the REC SAFETY SWITCH (this is not necessary for the VS-P100 model).
3) Remove the Ⓐ, Ⓑ, Ⓒ and Ⓓ screws, then remove the LOADING DRIVE BLK as shown in Fig. 3-7.

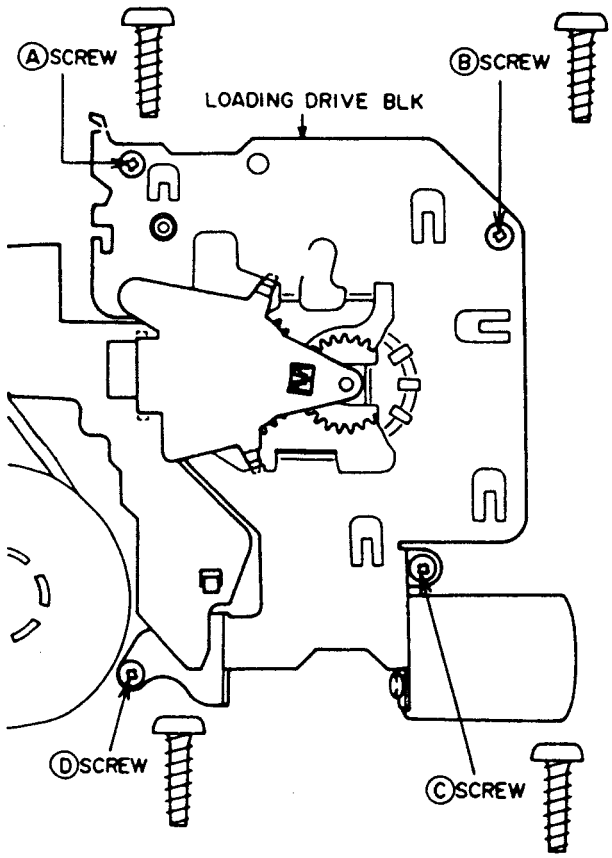


Fig. 3-7

3-4.REASSEMBLY OF THE LOADING MECHANISM BLK

3-4-1. Position of the TOGGLE GEARs (T) and (S)

1) Set the TOGGLE GEAR (T) and TOGGLE GEAR (S) to the unloaded position with your fingers. Align the Ⓐ mark on the TOGGLE GEAR (S) with the Ⓐ hole of the TOGGLE GEAR (T) as shown in Fig. 3-8.

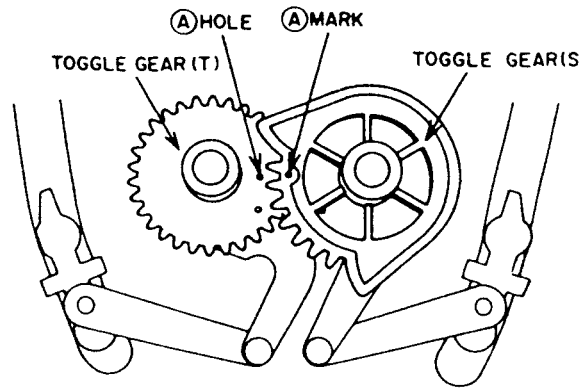


Fig. 3-8

3-4-2. Installation of the CAM SLIDER GEAR & FRONT LOADING GEAR

1) Attach the WORM WHEEL GEAR as shown in Fig. 3-9.

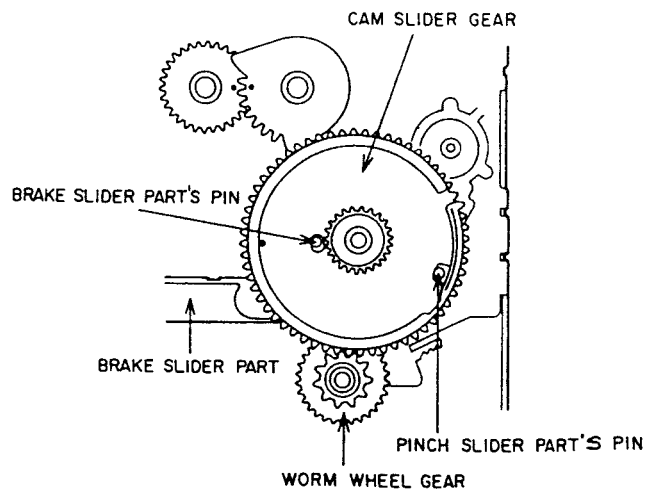


Fig. 3-9

2) Set the CAM SLIDER GEAR. At this time, adjust the position of the BRAKE SLIDER PART and PINCH SLIDER PART so that both pins appear through the holes on the CAM SLIDER GEAR as shown in Fig.3-9.

3) Attach the FRONT LOADING GEAR as shown in Fig. 3-10. At this time, align the Ⓑ mark on the FRONT LOADING GEAR with the Ⓑ hole of the FRONT LOADING SLIDER as shown in Fig. 3-11.

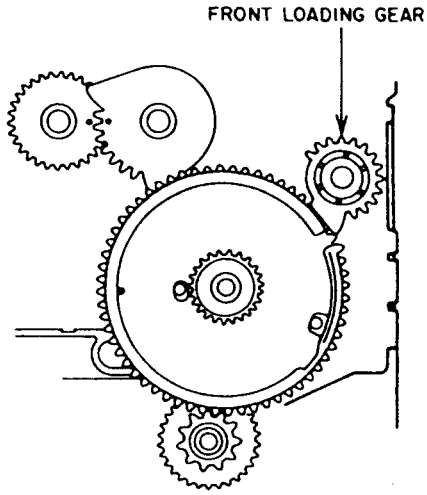


Fig. 3-10

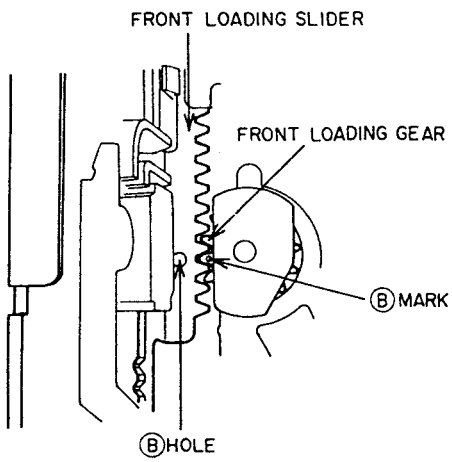


Fig. 3-11

3-4-3. Confirmation of the position of the EJECT GEAR

1) Confirm that the EJECT GEAR is in the correct position as shown in Fig. 3-12.

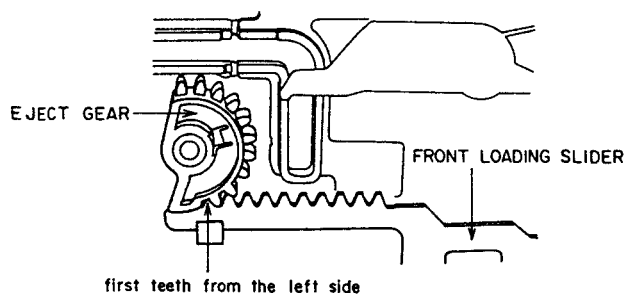


Fig. 3-12

2) Install the LOADING DRIVE BLK as shown in Fig. 3-13.

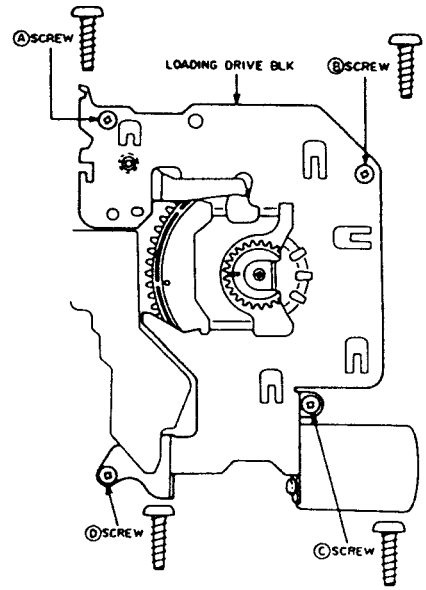


Fig. 3-13

3-4-4. Installation of the MODE SELECT SWITCH

1) Set the MODE SELECT SWITCH's gear so that the © mark is in the center of the © hole as shown in Fig. 3-14.

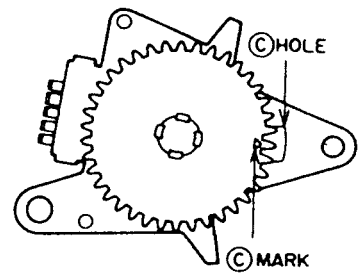


Fig. 3-14

2) Attach the MODE SELECT SWITCH to the LOADING DRIVE BLK. At this time, align the hollow of the gear's tooth (reverse side of the © mark) with the © groove of the CAM SLIDER GEAR as shown in Fig. 3-15.

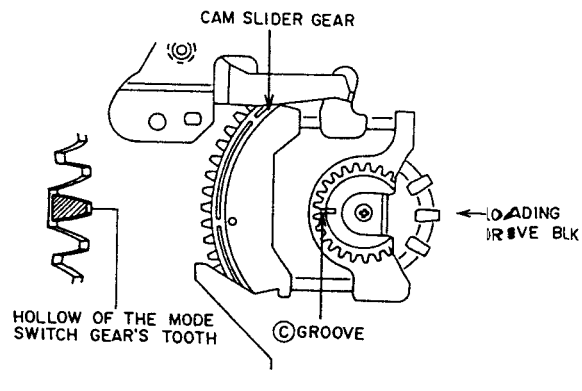


Fig. 3-15

3-4-5. Installation of the LOADING ARM BLK

1) While covering the SENSOR (S) with your fingers, connect the AC power plug to the AC socket. The FRONT LOADING SLIDER will reach the "EJECT" position. Then disconnect the AC power plug from the AC socket before you release your fingers from the SENSOR (S).
2) Install the LOADING ARM BLK in the reverse order of 3-1-2 (Removal of the LOADING ARM BLK). Set the position between both the EJECT GEAR and the JOINT GEAR as shown in Fig. 3-16.

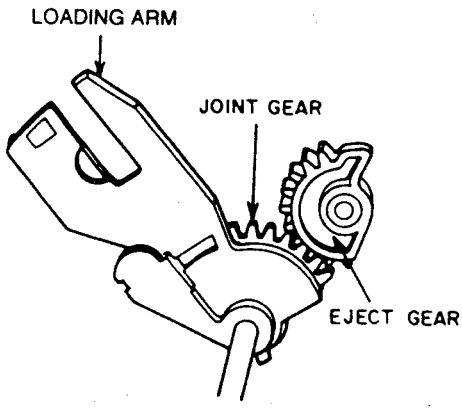


Fig. 3-16

3-4-6. Installation of the CASSETTE LOAD BLK, FRONT GUIDE and UPPER PLATE

1) Attach the CASSETTE LOAD BLK, FRONT GUIDE and UPPER PLATE in the reverse order of 3-1-1 (Removal of the CASSETTE LOAD BLK).
2) Insert a video cassette tape and confirm that the loading mechanism will operate properly.

3-5.REPLACEMENT OF THE PINCH HOLDER PART

1) Remove the grip ring and release the stopper of the PINCH ARM and remove the PINCH ARM BLK as shown in Fig 3-17.

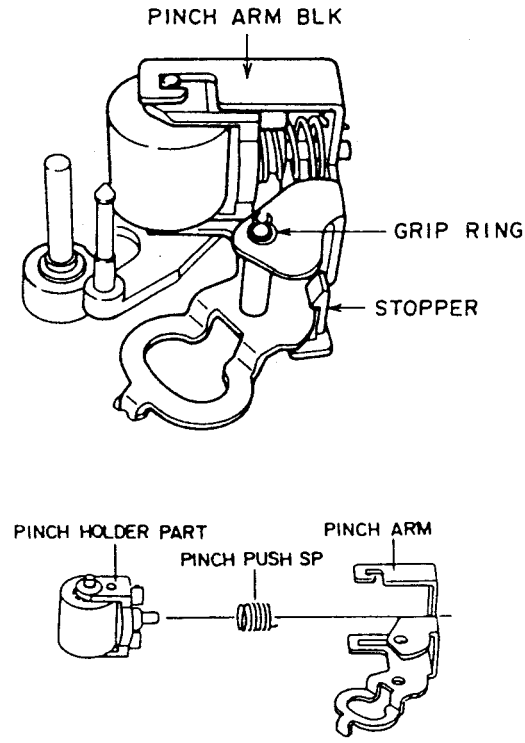


Fig. 3-17

2) Turn the PINCH HOLDER PART 30 degrees clockwise while pushing it backward and remove the PINCH HOLDER PART from the PINCH ARM.
3) Reassemble the PINCH ROLLER ARM BLK in the reverse order of 1) to 2).

3-6.REPLACEMENT OF THE IDLER PART AND REVIEW BRAKE PART

1) Remove the REWIND BRAKE PART, CASSETTE LOAD BLK & ARM LOADING BLK. (Refer to 3-1, REMOVAL OF THE EJECTOR BLK.)
2) Release the stopper of the IDLER PART as shown in Fig. 3-18, then remove it.

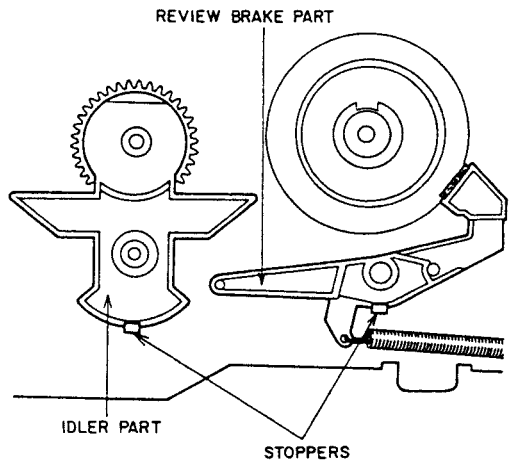


Fig. 3-18

3) Take off the review brake part spring, then release the stopper of the REVIEW BRAKE PART and remove it.
4) Reassemble these parts in the reverse order of 1) to 3).

3-7. REPLACEMENT OF THE UPPER DRUM

3-7-1. Removal of the UPPER DRUM

1) Unsolder the four relay leads and remove the two upper drum fixing screws as shown in Fig. 3-19.
2) Gently lift and remove the UPPER DRUM.

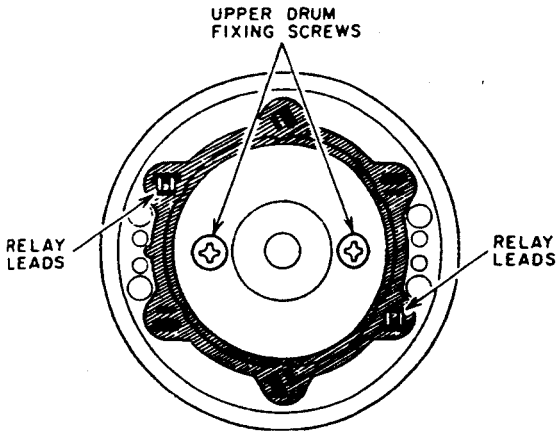


Fig. 3-19

3-7-2. Installation of the UPPER DRUM

1) Attach the UPPER DRUM to the LOWER DRUM ROTOR so that the upper drum convex Ⓐ and lower drum rotor's white mark are in the same direction as shown in Fig. 3-20.

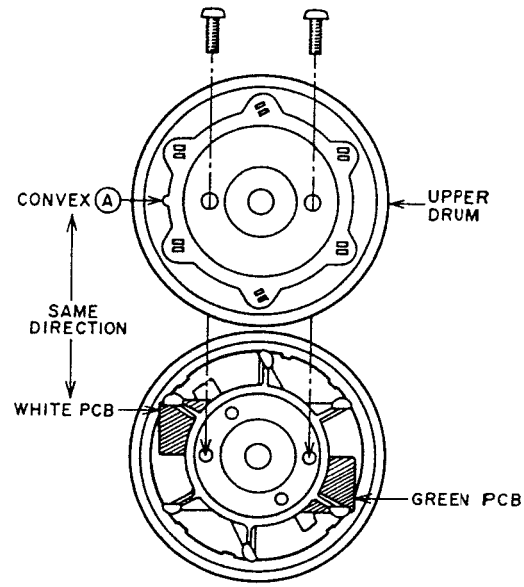


Fig. 3-20

NOTE: Because height precision is required for proper performance, and because head tips are fragile, the following points should be noted when replacing the UPPER DRUM BLOCK.

a) Do not loosen the set screw on the collar preload.
b) Before fixing, use alcohol to clean both surfaces where the upper drum and the rotary transformer meet.
c) If the UPPER DRUM can not be inserted onto the shaft easily during installation, clean the hole in the UPPER DRUM with alcohol and put a little oil on the shaft.
d) Make sure that the upper drum fixing screw holes on the rotary transformer part and the upper drum fixing screw penetration holes match exactly before inserting the fixing screws.
e) Tighten the two upper drum fixing screws alternately and gradually.

3-7-3. After replacement

After replacement, the following adjustments are necessary for the proper performance.

1) Control head Phase adjustment (IV. MECHANICAL ADJUSTMENT 4-3-3.)
2) PB switching point adjustment. (V. ELECTRICAL ADJUSTMENT Step 8)
3) Video head REC current adjustment. (V. ELECTRICAL ADJUSTMENT Step 5)

3-8.DRUM MOTOR PC BOARD REPLACEMENT

1) Remove the two Ⓐ screws on the ROTARY PLATE and remove the ROTARY PLATE.
   Then disconnect the connector on the DRUM MOTOR PCB as shown.

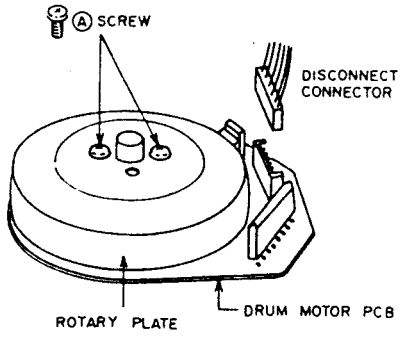


Fig. 3-21

2) Remove the three Ⓑ screws which retain the DRUM MOTOR PCB and replace the DRUM MOTOR PCB.

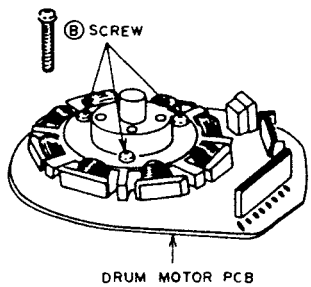


Fig. 3-22

3) Attach the ROTARY PLATE to the collar preload so that the rotary plate Ⓒ hole and collar preload Ⓓ hole are in the same direction.

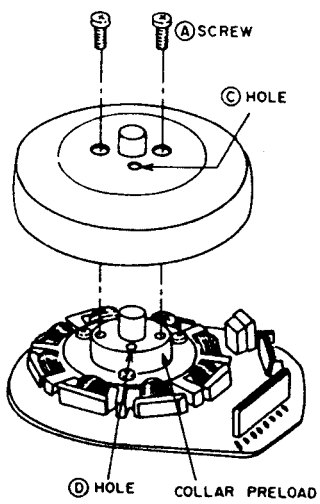


Fig. 3-23

3-9.REMOVAL OF THE MECHANISM BLOCK

3-9-1. Removal of the PRE AMP PC Board

1) Remove the VIDEO PCB.
2) Remove the two Ⓐ screws then pull up the PRE AMP PCB as shown in Fig. 3-24.

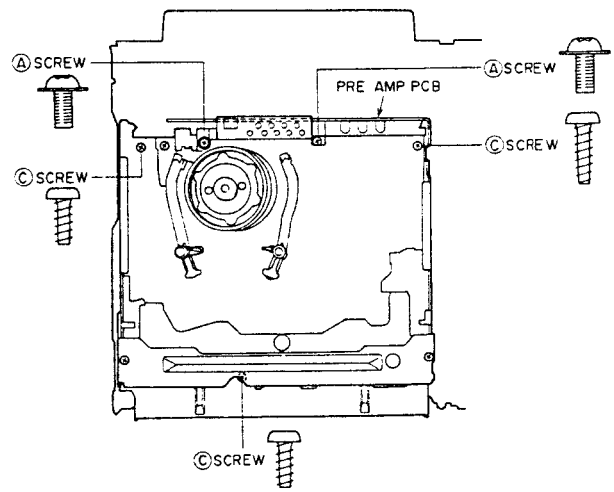


Fig. 3-24

3-9-2. Removal of the MECHANISM BLK (MECHA. FRAME)

1) Disconnect the connectors P402, P404, on the CONTROL/AUDIO PCB and P1 on the A/C HEAD PCB.
2) Remove the three Ⓒ screws from the MECHA. FRAME as shown in Fig. 3-24.
3) Hold the rear side of the MECHA. FRAME then remove by pulling up backward.
4) Reassemble in the reverse order for installation.

IV. MECHANICAL ADJUSTMENT

4-1.BACK TENSION ADJUSTMENT

1) Play back a recorded tape which is no longer needed.
2) Confirm that the Ⓐ groove on the TENSION ARM aligns with right end of the Ⓐ mark on the MECHA. CHASSIS as shown in Fig.4-1.
3) If the result is not satisfactory, eject the tape and adjust the TENSION ADJUST repeatedly until the result is satisfactory.

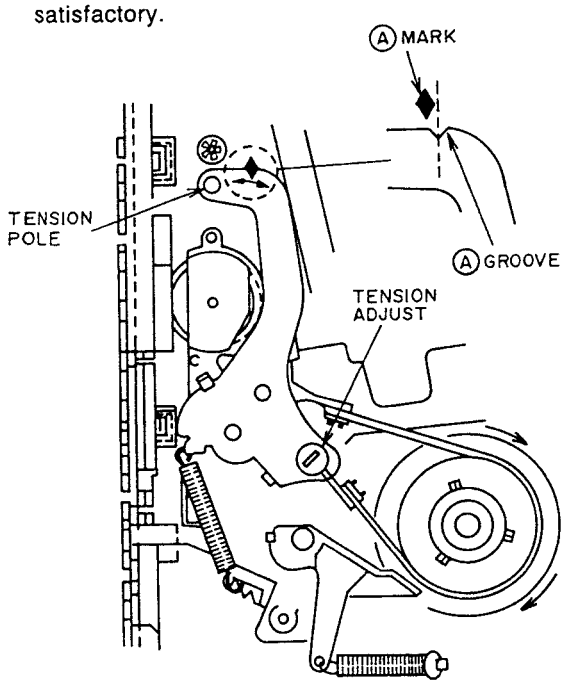


Fig. 4-1

4-2.TAPE TRANSPORT ADJUSTMENTS

NOTE: The following adjustments are required only when an irregularity is found since these adjustment are performed precisely at the factory.

4-2-1. Tape curl adjustment at the TAKE-UP TAPE GUIDE

1) Play back a recorded tape which is no longer needed.
2) Turn the Ⓐ screw on the A/C HEAD BLK until the edge of the tape barely touches the lower part of TAKE-UP TAPE GUIDE without any curl or wrinkle.
3) Once the Ⓐ screw is adjusted, A/C HEAD height and azimuth adjustment is required. (Refer to 4-3. A/C HEAD POSITION ADJUSTMENT.)

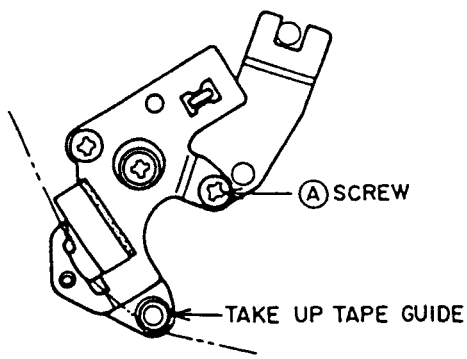


Fig. 4-2

(TAKE-UP TAPE GUIDE)

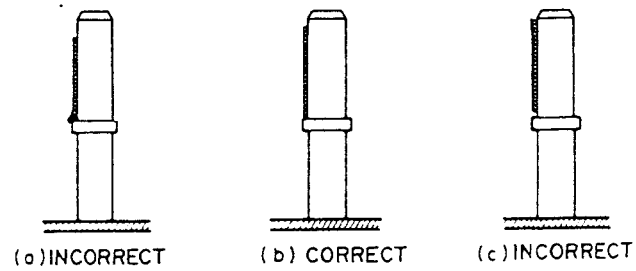


Fig. 4-3

4-2-2. Confirmation of tape curl at the SUPPLY TAPE GUIDE

Confirm that the edge of the tape barely touches the lower part of the SUPPLY TAPE GUIDE without any curl or wrinkle as shown in Fig.4-4.

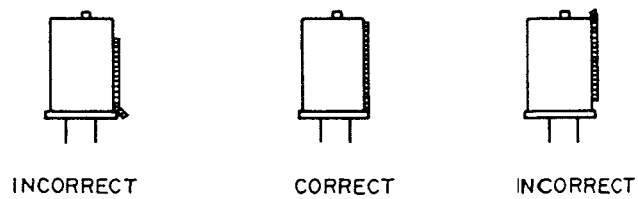


Fig. 4-4

4-2-3. REVIEW ARM height adjustment

1) Play back the beginning part of an E-240 (T-160) tape and set the unit in the REVIEW mode by pressing the REW button.
(Remove the tape protection cover to make the adjustment easy.)

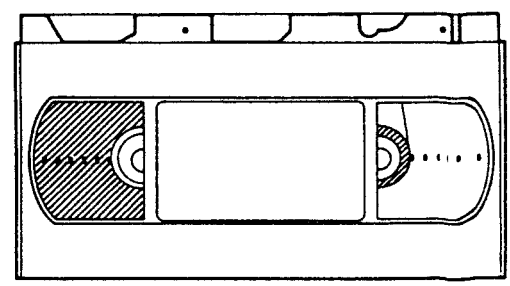


Fig. 4-5

2) Turn the REVIEW ARM height Ⓐ nut so that the edge of the tape barely touches the lower part of the TAKE-UP TAPE GUIDE without any curl or wrinkle between the TAKE-UP TAPE GUIDE and the CAPSTAN SHAFT as shown in Fig.4-6 to Fig.4-8.

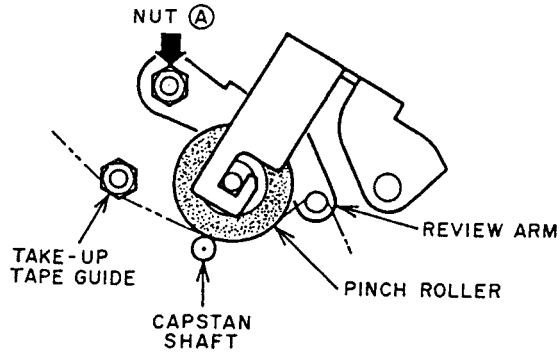


Fig. 4-6

(TAKE-UP TAPE GUIDE)

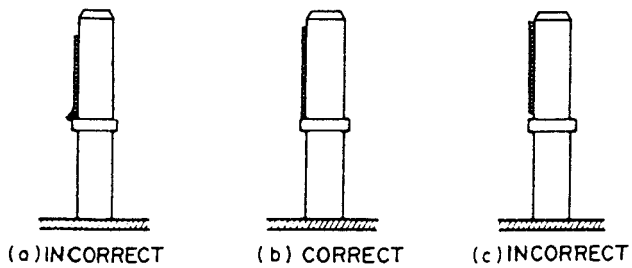


Fig. 4-7

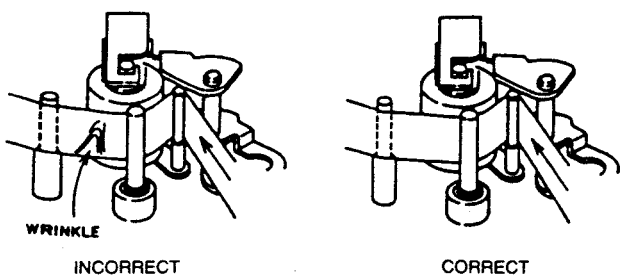


Fig. 4-8

3) Play back the beginning part of an E-240 (T-160) tape and this time set the unit in the QUE mode by pressing the F.FWD button.
4) Confirm there is no curl or wrinkle at REVIEW ARM's guide.
If curl or wrinkle of the tape has occurred, slightly turn the Ⓐ nut (Shown in Fig.4-6) until it disappears.

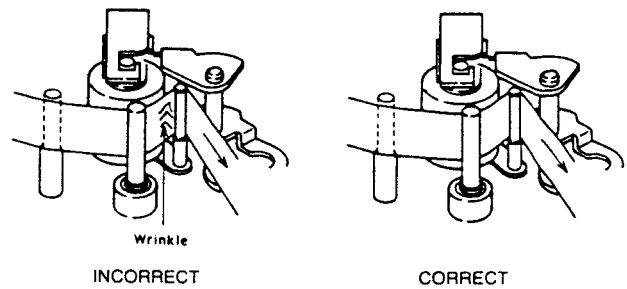


Fig. 4-9

5) Set the unit in REVIEW mode again. Then confirm that there is no curl or wrinkle at the TAKE-UP TAPE GUIDE. (A small gap may appear after this adjustment, but this is allowable)

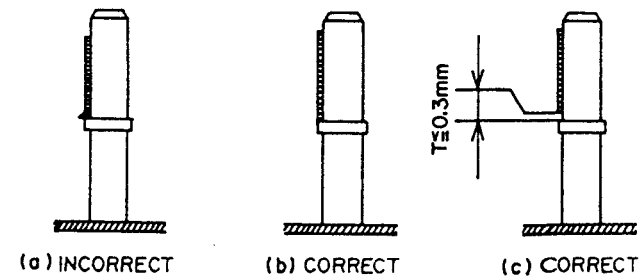


Fig. 4-10

NOTE:
1. If results are not satisfactory, repeat steps 2) to 5).
2. Always play an undamaged tape to obtain satisfactory adjustment.
3. Because an E-240 (T-160) tape can easily be damaged due of its thinness, a pre-adjustment with an E-180 (T-120) tape is recommended.

4-2-4. LOADING LEADER height adjustments

1) Slightly loosen the set screw at the lower part of the LOADING LEADERs (L), (R) so that the LOADING LEADER can be adjusted with reasonable tightness. (Refer Fig.4-11.)

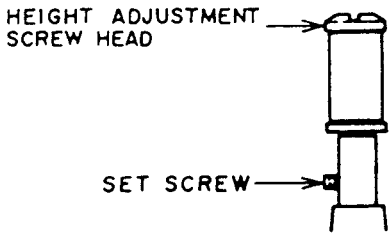


Fig. 4-11

2) Play back the reference tape TF-530RFS (AT-751775).
3) Connect an oscilloscope's CH-1 to the Q201 emitter (ENVE) on the VIDEO PCB and CH-2 to the IC1 ② pin (VSWP) on the PRE AMP PCB for triggering.
4) Turn the LOADING LEADER heads with a flat head (—) screwdriver to obtain flat RF envelope as ideal envelope as shown in Fig.4-12.
5) After adjustment is completed, tighten the loading leader set screws.

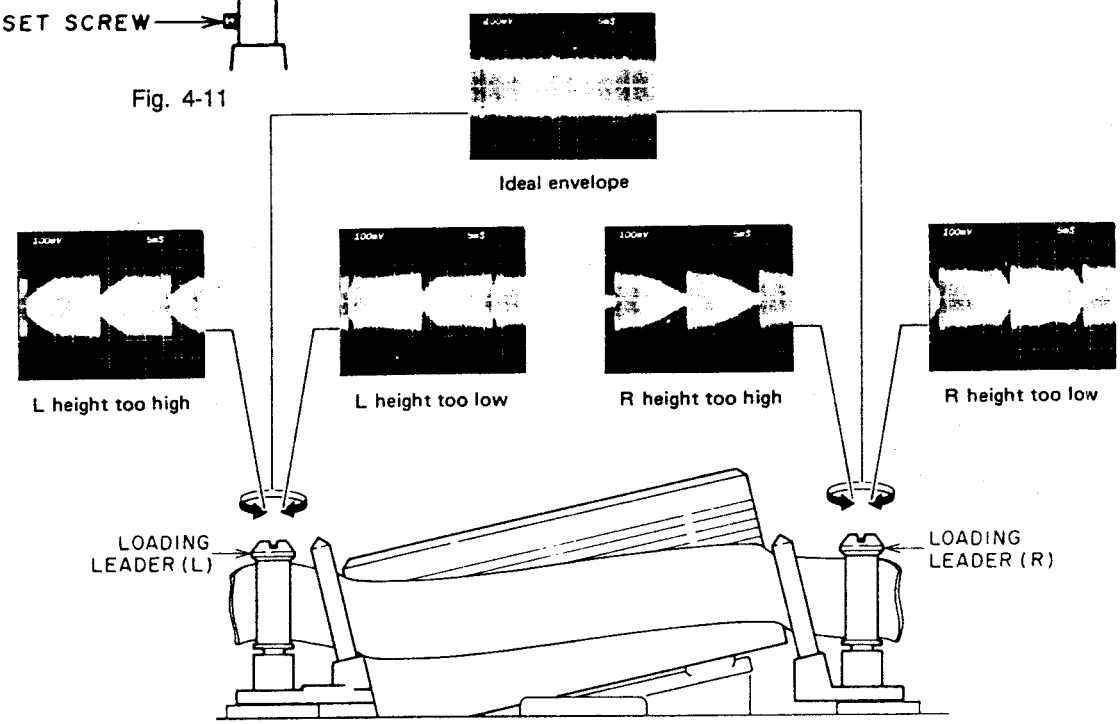


Fig. 4-12

4-3.A/C HEAD POSITION ADJUSTMENT

4-3-1. Azimuth adjustment

1) Connect an AC voltmeter or an oscilloscope to the AUDIO OUT terminal on the rear panel.
2) Play back the reference tape TF-530RFS (AT-751775).
3) Adjust the Ⓑ screw to obtain the maximum audio output.

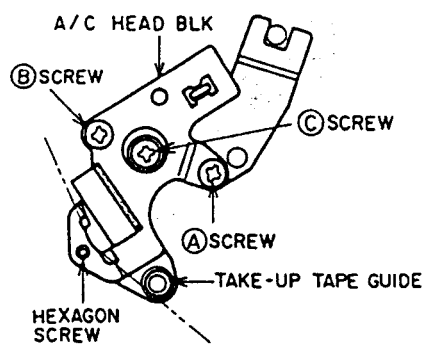


Fig.4-13

4-3-2. Height adjustment

1) Play back the test tape TF-526HH (AT-751738).
2) Connect an oscilloscope's CH-1 to the AUDIO OUT on the rear panel and CH-2 to the TP401 (CTL OUT) on the CONTROL/AUDIO PCB.
3) Turn the hexagon screw to obtain 1/2 of the output level of either CH-1 or CH-2 whichever has an output signal as shown in Fig.4-14.
   Then set both of the oscilloscope's channels to 100mV/div and finely adjust the hexagon screw until both signals of CH-1 and CH-2 are nearly the same level.
4) Slightly turn the Ⓐ screw until the tape edge barely touches the lower part of the TAKE-UP TAPE GUIDE without any curl or wrinkle as shown in Fig.4-3.
5) Adjust the head azimuth again. (Turning the hexagon screw or Ⓐ screw will cause head azimuth mis-alignment. Refer to 4-3-1. Azimuth adjustment.)
6) Confirm that both signals of CH-1 and CH-2 are nearly the same level (Confirm that neither of the CH-1 or CH-2 output level exceed 100mVp-p). If the result is not satisfactory,repeat steps 3) to 5).

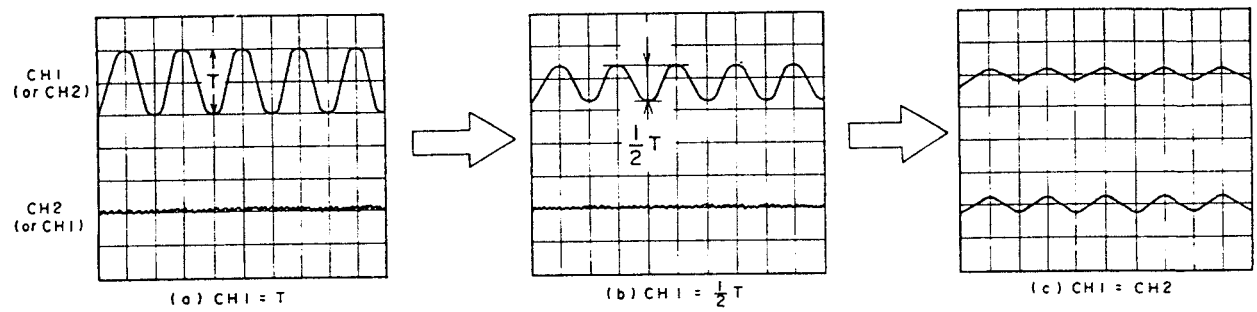


Fig. 4-14

4-3-3. Phase adjustment

1) Connect an oscilloscope's CH-1 to the Q201 emitter (ENVE) on the VIDEO PCB and CH-2 to the IC1 ② pin (VSWP) on the PRE AMP PCB for triggering.
2) Play back the reference tape TF-530RFS (AT-751775).
3) Press the either > or < tracking buttons on the front panel so that tracking center indicator is lit.
4) Loosen the © screw slightly so that the A/C HEAD PLATE can be moved with reasonable tightness.
5) Insert a sharp flat head (—) screwdriver into the A/C HEAD BASE and Ⓐ hole as shown in Fig.4-16.
6) Move the A/C HEAD BASE by moving a screwdriver in the direction of the arrow as shown in Fig.4-16 to obtain the maximum RF output, then tighten the © screw.

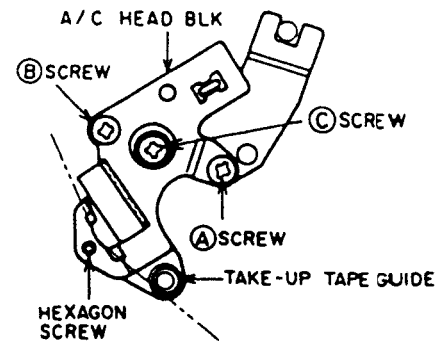


Fig. 4-15

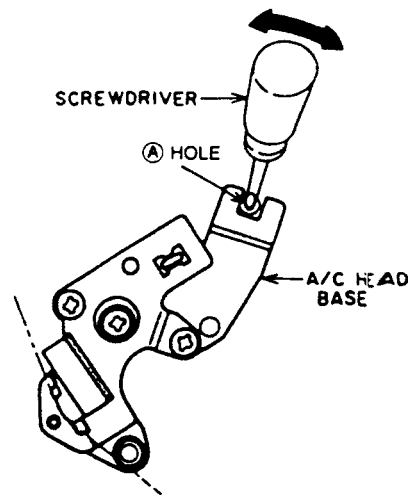


Fig. 4-16

V. ELECTRICAL ADJUSTMENT

Precautionary items prior to adjustments
1. The color bar generator output should be 1.0 Vp-p.
2. The video output terminal should be terminated with 75 ohms (connect dummy load or 75 ohms input TV.)

Required following test tapes.

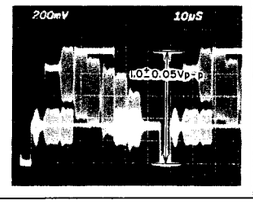
Test tape	Parts No.
TF-527BL	AT-711880
TF-530RFS	AT-751775
TF-532CBS	AT-751360
TF-542CBS	AT-751365

STEP	ADJUSTMENT ITEM
1.	MODE and INPUT SIGNAL/TEST TAPE
2.	TEST POINT and ADJ part
3.	REMARKS (•) & RESULT (✻)

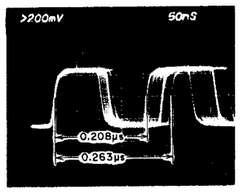
Test point　　ADJ point

✻ Step 2, 3, 5 and 7 are not necessary for VS-P100 model.

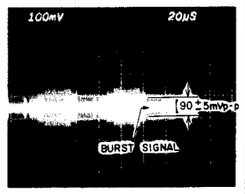
1 VIDEO PB LEVEL
1. "PB",test tape TF-532CBS
2. VIDEO OUT & VR101 (PB LEVEL)
3. • Connect an oscilloscope to VIDEO OUT
   ✻ Adjust VR101 so that PB level becomes 1.0 Vp-p

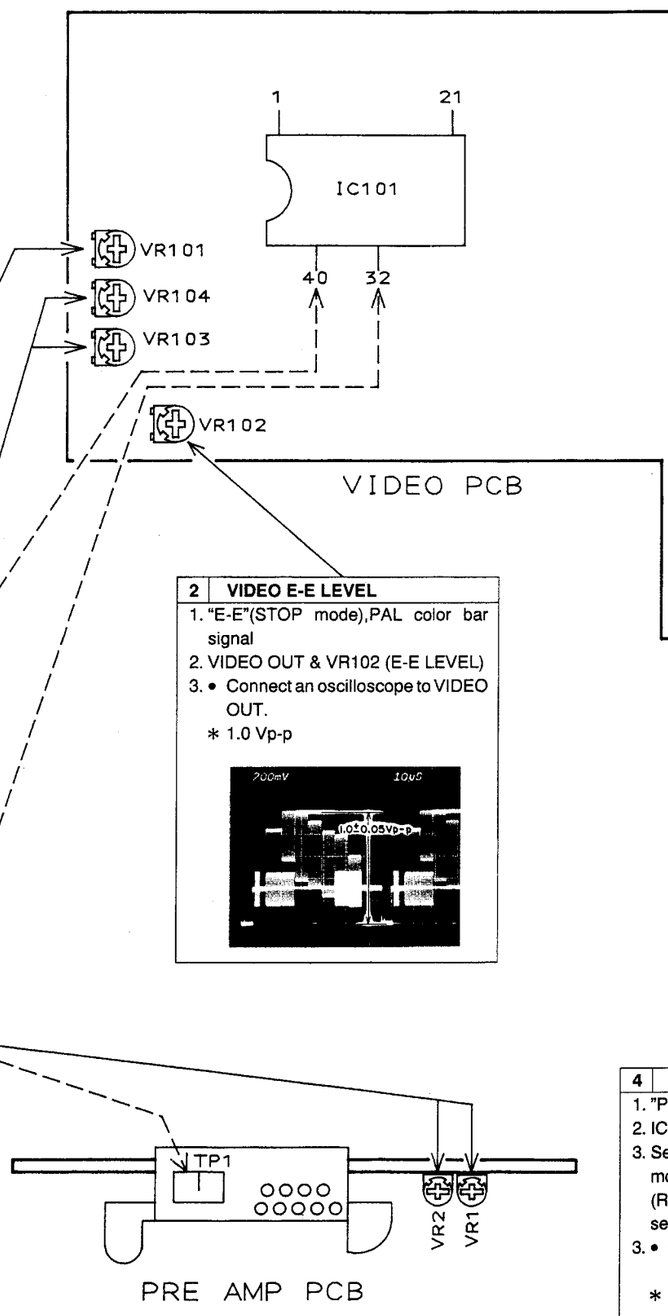


3 CARRIER SET & DEVIATION
1. "REC", PAL color bar signal
2. IC101 ㊵ pin (REC.Y) & VR103 (CARRIER), VR104 (DEVIATION)
3. • Connect an oscilloscope to IC101 ㊵ pin (REC.Y)
   ✻ VR103 (CARRIER) : 0.263 μs (3.8 MHz)
   ✻ VR104 (DEVIATION) : 0.208 μs (4.8 MHz)

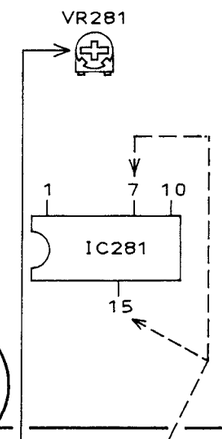


5 VIDEO REC CURRENT
1. "REC", PAL color bar signal
2. TP1 (REC.CURR), IC101 ㉜ pin (C.SYNC) & VR1 (REC-Y),VR2 (REC-CHROMA)
3. • Connect an oscilloscope's CH-1 to TP1 (REC.CURR), CH-2 to IC101 ㉜ pin (C.SYNC) for triggering and ground to PRE AMP PCB.
   • Turn the VR1 (REC-Y) fully counterclockwise.
   ✻ Adjust VR2 (REC-CHROMA) so that the chroma REC current becomes 90 mVp-p at the burst signal area.
   ✻ Disconnect the input signal, then adjust VR1 (REC-Y) so that Y REC current becomes 5.6 Vp-p.

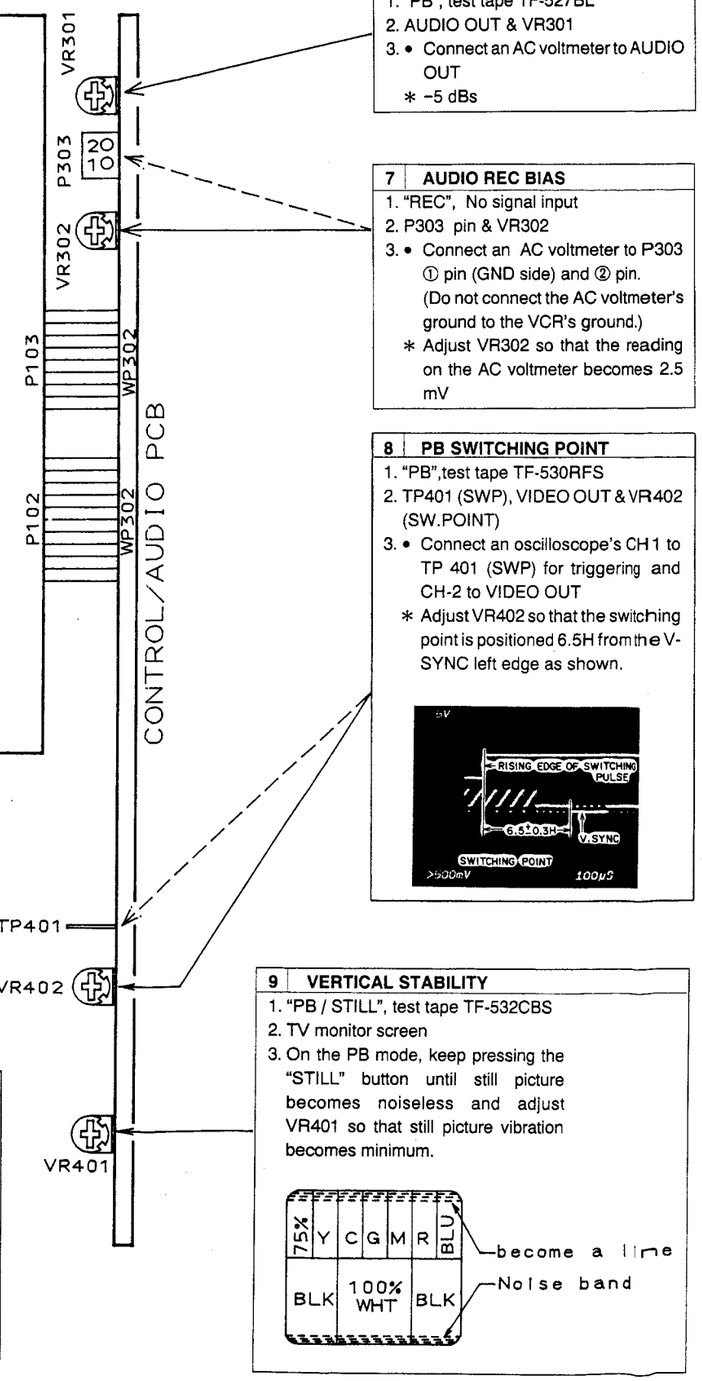




2 VIDEO E-E LEVEL
1. "E-E"(STOP mode),PAL color bar signal
2. VIDEO OUT & VR102 (E-E LEVEL)
3. • Connect an oscilloscope to VIDEO OUT.
   ✻ 1.0 Vp-p



4 AFC
1. "PB", test tape TF-542CBS
2. IC281 ⑦ pin (AFC) & VR281
3. Setting the VCR to the NTSC → PAL mode.
   (Refer to "Color system output mode selection" on page 4 for details)
   • Connect a frequency counter to IC281 ⑦ pin and 5V to IC281 ⑬ pin.
   ✻ Adjust VR281 so that the frequency counter reads 15.75 kHz ± 0.05 kHz



6 AUDIO PB LEVEL
1. "PB", test tape TF-527BL
2. AUDIO OUT & VR301
3. • Connect an AC voltmeter to AUDIO OUT
   ✻ −5 dBs

7 AUDIO REC BIAS
1. "REC", No signal input
2. P303 pin & VR302
3. • Connect an AC voltmeter to P303 ① pin (GND side) and ② pin. (Do not connect the AC voltmeter's ground to the VCR's ground.)
   ✻ Adjust VR302 so that the reading on the AC voltmeter becomes 2.5 mV

8 PB SWITCHING POINT
1. "PB",test tape TF-530RFS
2. TP401 (SWP), VIDEO OUT & VR402 (SW.POINT)
3. • Connect an oscilloscope's CH1 to TP 401 (SWP) for triggering and CH-2 to VIDEO OUT
   ✻ Adjust VR402 so that the switching point is positioned 6.5H from the V-SYNC left edge as shown.

9 VERTICAL STABILITY
1. "PB / STILL", test tape TF-532CBS
2. TV monitor screen
3. On the PB mode, keep pressing the "STILL" button until still picture becomes noiseless and adjust VR401 so that still picture vibration becomes minimum.

VI. PARTS LIST

ATTENTION

1. When placing an order for parts, be sure to list Part No., Model No. and the description of eachpart. Otherwise, the non-delivery of the part or the delivery of a wrong part may result.
2. Please make sure that Part No. is correct when ordering. If not, a part different from the one you ordered may be delivered.
3. Since the parts shown in Parts List of Preliminary Service Manual may have been the subject of changes, please use this Parts List for all future reference.

HOW TO USE THIS PARTS LIST

1. This Parts List lists those parts which are considered necessary for repairs. Other common parts, such as resistors and capacitors, are listed in the "Common List for Service Parts" from which these parts should be selected and stocked.
2. The Recommended Spare Parts List shows those parts in the Parts List which are considered particularly important for service.
3. Parts not shown in the Parts List and "Common List for Service Parts" will not in principle be supplied.
4. How to read the Parts List.

a) Mechanism Block

2. HEAD BASE BLOCK

Ref. No.	Part No.	Description
1	BH-T2023A320A	HEAD BASE BLOCK
2	HP-H2206A010A	HEAD R/P PR4-8FU C
3	ZS-477876	PAN20×03STL CMT
4	ZS-536488	BID20×08STL CMT
5	ZG-402895	SP CS ANGLE ADJUST

SP (Service Parts) Classification

This number corresponds with the individual parts index number in that figure.

b) PC Board

6. MAIN PC BOARD

Ref. No.	Part No.	Description
IC1	EI-324536	IC HD14049BP
IC2	EI-336801	IC MB8841-564M
C1A	EC-338399	C MMY V 223M 250AC [U,E,B,S]
C1B	EC-350949	C MMY V 223M 250DC [J]
C1C	EC-338397	C MMY V 223M 125AC [C,A]
X1	EI-318384	OSC X'TAL NC-18C

Symbols for primary destination

[A] :AAL (U.S.A) [S] :SAA (Australia)
[B] :BEAB (England) [U] :U/T (Universal Area)
[C] :CSA (Canada)
[E] :CEE (Europe) [V] :VDE (Germany)
[J] :JPN (Japan) [Y] :Custom Version

SP (Service Parts) Classification

These reference symbols correspond with component symbols in the Schematic Diagrams.

The available PC Board Blocks are listed separately.

5. When Part No. is known, Parts Index at end of Parts List can be used to locate where that part is shown in Parts List
by its Reference No.listed at right of Part No.

WARNING

⚠ (*) INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURE'S RECOMMENDED PARTS.

AVERTISSEMENT

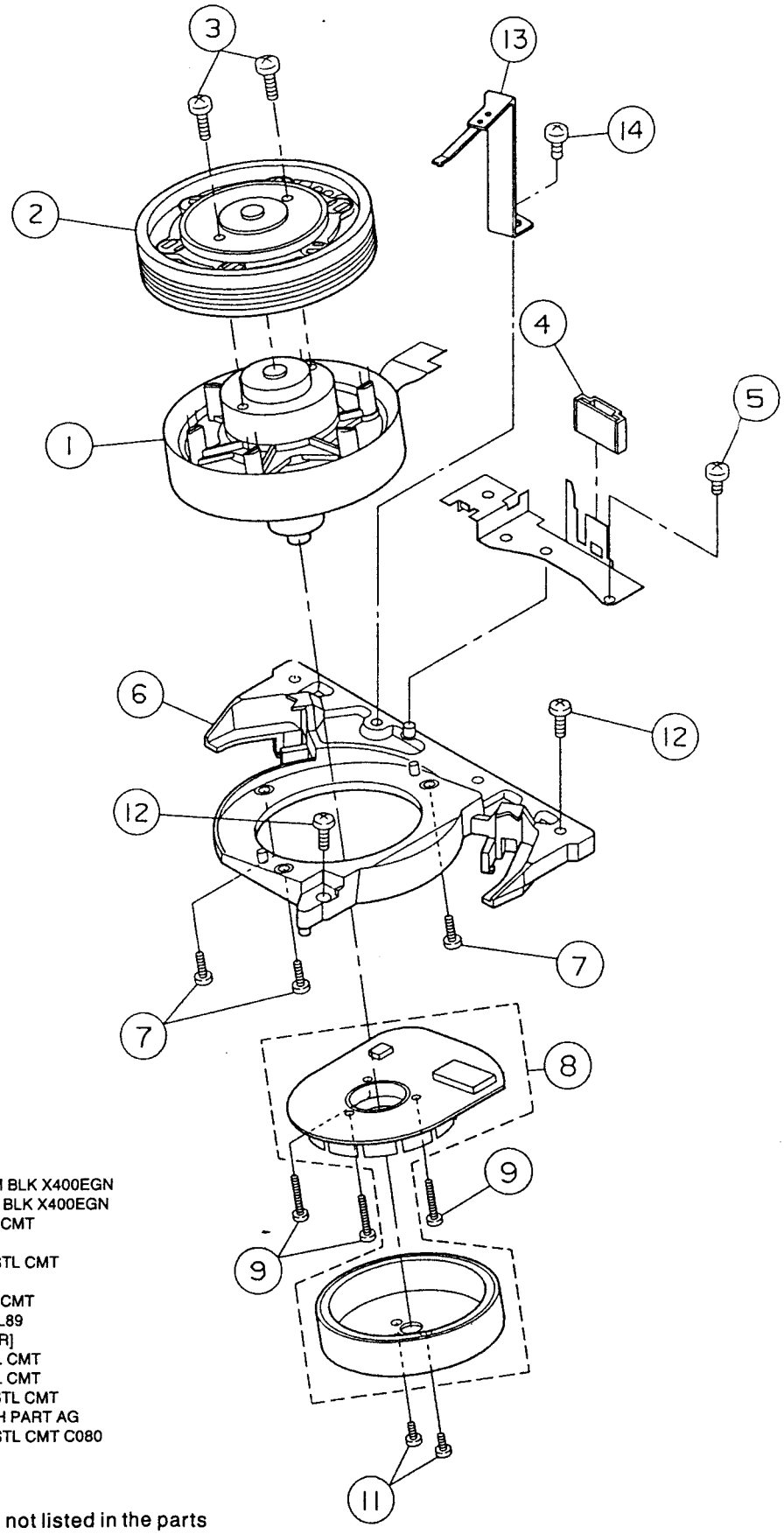
⚠ (*) IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉDE L'APPAREIL, NE REMPLACER QUE DES PIÉCES RECOMMANDEES PAR LÉ FABRICANT.

1.RECOMMENDED SPARE PARTS

We suggest you to stock the following Recommended Spare Part items listed below since they can cover most of the routine service.

Ref.No.	Part No.	Description
1	BB-V1130A020A	MECHA DECK BLK F220EA
2	BL-V1102A140A	ARM LOADING BLK 425EA
3	BL-V1102A160A	ARM PINCH ROLLER (2) BLK 425EA
4	BL-V1102A050A	TENSION ARM BLK 425EA
5	BM-400682J1	MOTOR DFX-67B3VWB1 [CAPSTAN MOTOR]
6	BM-401296J	MOTOR E20EL89 [DRUM MOTOR]
7	BM-387503J	MOTOR PART [LOADING MOTOR]
8	BV-V1102A150A	CASSETTE LOAD BLK 425EA
9	BV-V1102A070A	LEADER S BLK 425EA
10	BV-V1102A080A	LEADER T BLK 425EA
11	BV-V1123A410A	LOWER DRUM BLK X400EGN
12	BV-730498J	RF CONVERTER MDLK5D023A [EM]
13	BV-732844J	RF CONVERTER MDLK6 6E789A [EDG]
14	BV-V1123A420A	UPPER DRUM BLK X400EGN
15	EA-387496J	PC (#) SENSOR
16	ED-390011J	D LED GL451 INFRARED [D1]
17	ED-390012J	D LED GL4800 INFRARED [D2]
18	ED-732495J	D LED SLR-331VC70F070 RED
19	ED-730668J	D LED SPB-25MVWF
20	ED-386226J	D SCHOTTKY RB100AT-32T26 40/1
21	ED-732858J	D SILICON AU01Z V0
22	ED-732854J	D SILICON EP01C V0
23	ED-732857J	D SILICON ERA18-02 V3
24	ED-732856J	D SILICON ERA18-04 V3
25	ED-307572	D SILICON H 1SS131
26	ED-732860J	D SILICON RU2YX V1
27	ED-732859J	D SILICON RU3YX LFC4
28	*ED-732853J	D SILICON S1WB (A) 60
29	*ED-732510J	D SILICON S5688B
30	ED-386090J	D ZENER H HZS5.1B3S F05
31	ED-378530J	D ZENER H HZS6B2L F05
32	ED-387763J	D ZENER H HZS7B3L F05
33	ED-388368J	D ZENER H HZS9B3L F05
34	*EF-364518	FUSE BET T 250V 2.50A
35	EH-732509J	DL EFD-HF645A45A
36	EH-390730J	DL EFD-JF124A13J
37	EI-373980	IC BA15218N
38	EI-397299J	IC BA6229-U2
39	EI-387598J	IC BA7252S
40	EI-388360J	IC BA7765AS
41	EI-403234J1	IC LA7391A
42	EI-394856J	IC LC8992
43	EI-732845J	IC MN675121 P100 MULTI1 NSA
44	EI-725303J	IC M51951BSL
45	EI-732508J	IC M52063SP [EM]
46	EI-732863J	IC STK50322
47	EI-732862J	IC STR-D1906
48	EI-389640J	OSC X'TAL HC-49/U 8000KHZ
49	EI-381632J	OSC X'TAL 86686 4.433619MHZ
50	EO-730665J	OSC BLK
51	*EO-732864J	TRANS TS7112V-C
52	*ER-391043J	R FUSE H S10 RF25SC 1/6W R47K
53	ER-730134J	R FUSE RF25SC-L10 R22J
54	ER-732851J	R FUSE RF25SC-VTP R33K
55	ES-373099	SW LEAF MTS10110MPC1
56	ES-387465J	SW MODE SELECT MMS00070ZLBO [SW1]
57	ES-730499J	SW SLIDE SSSF1
58	ES-732849J	SW TACT SKHVBL [POWER]
59	ET-732496J	DETECTOR GP1U561
60	ET-356336	TR DTA114ES
61	ET-363953	TR DTA114TS [EM]
62	ET-360646	TR DTA143ES [EM]
63	ET-370634	TR DTA143XS
64	ET-354415	TR DTA144ES
65	ET-373985	TR DTA144TS
66	ET-353897	TR DTC114ES
67	ET-354364	TR DTC143TS
68	ET-354414	TR DTC144ES
69	ET-361490	TR PHOTO PN268 [TR1]
70	ET-390010J	TR PHOTO PT4800 [TR2]
71	ET-390009J	TR PHOTO PT493F [TR4]
72	ET-356224	TR 2SA1286 G,H,J F05
73	ET-353899	TR 2SA1317 S,T,U
74	ET-397160J	TR 2SC3330 R,S,T,U,V
75	ET-732861J	TR 2SC4016 P,Q,R
76	HE-390013J	HEAD E HVFME0020A [VS-R100]
77	HR-405340J	HEAD COMBO HVMZA1121A
78	MB-387289J	BELT CAPSTAN
79	MI-387294J	IDLLER PART
80	ML-391745J2	ARM DAMPER
81	ML-387350J1	ARM LID OPENER
82	ML-387423J	ARM LOADING BRAKE
83	ML-387277J3	ARM REVIEW PART
84	ML-387402J1	LEVER TRIGGER
85	ML-387316J	MAIN BRAKE (S) PART
86	ML-387318J	MAIN BRAKE (T) PART
87	ML-387321J	REVIEW BRAKE PART
88	ML-387324J	SLIDER BRAKE PART
89	ML-404944J	SLIDER TRIGGER (2)
90	MR-387406J	HOLDER THRUST WORM
91	MR-391968J	PULLEY TRIGGER (2)
92	MR-387286J1	ROLLER IMPEDANCE
93	MT-390954J1	DISK (2) PART
94	MZ-387298J3	DISK CLUTCH PART
95	MZ-387331J	GEAR CAM SLIDER
96	MZ-387335J	GEAR EJECT
97	MZ-387333J	GEAR FRONT LOADING
98	MZ-V1102A090A	GEAR TOGGLE (S) BLK 425EA
99	MZ-V1102A100A	GEAR TOGGLE (T) BLK 425EA
100	MZ-387332J	GEAR WORM WHEEL

HEAD DRUM BLOCK

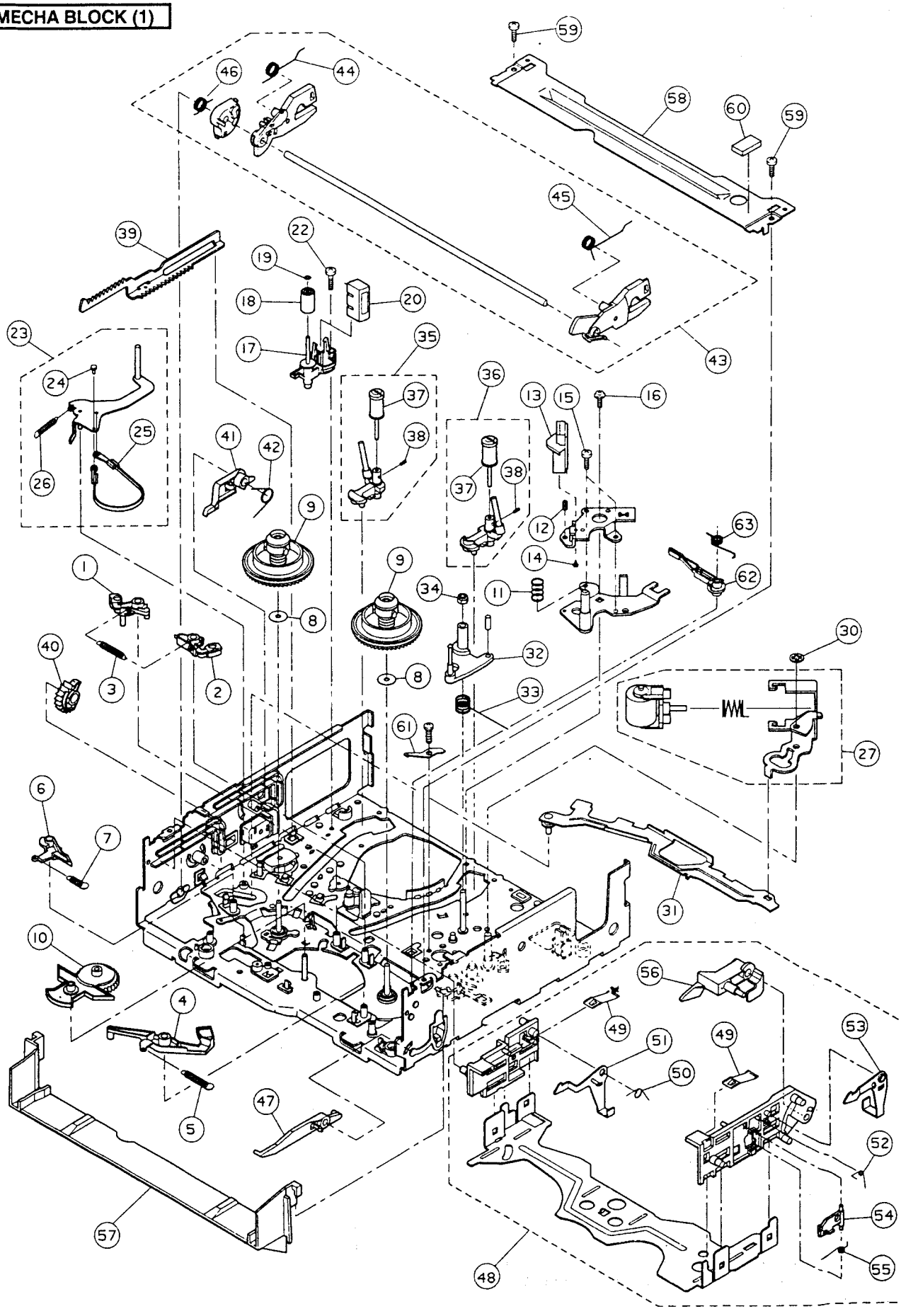


2. HEAD DRUM BLOCK

Ref.No.	Part No.	Description
1	BV-V1123A410A	LOWER DRUM BLK X400EGN
2	BV-V1123A420A	UPPER DRUM BLK X400EGN
3	ZS-321298	BID30X08STL CMT
4	SZ-387388J	HOLDER FPC
5	ZS-358936	ST BID30X06STL CMT
6	MA-387474J3	BASE DRUM
7	ZS-563444	BID26X08STL CMT
8	BM-401296J	MOTOR E20EL89 [DRUM MOTOR]
9	ZS-467796	PAN26X12STL CMT
11	ZS-379350	PAN30X06STL CMT
12	ZS-336714	ST BID30X12STL CMT
13	VT-401282J	EARTH BRUSH PART AG
14	ZS-389853J	DT BID30X06STL CMT C080

NOTE:
Parts will not be supplied if they are not listed in the parts list, even if they appear on the assembling illustrations with reference No.

MECHA BLOCK (1)

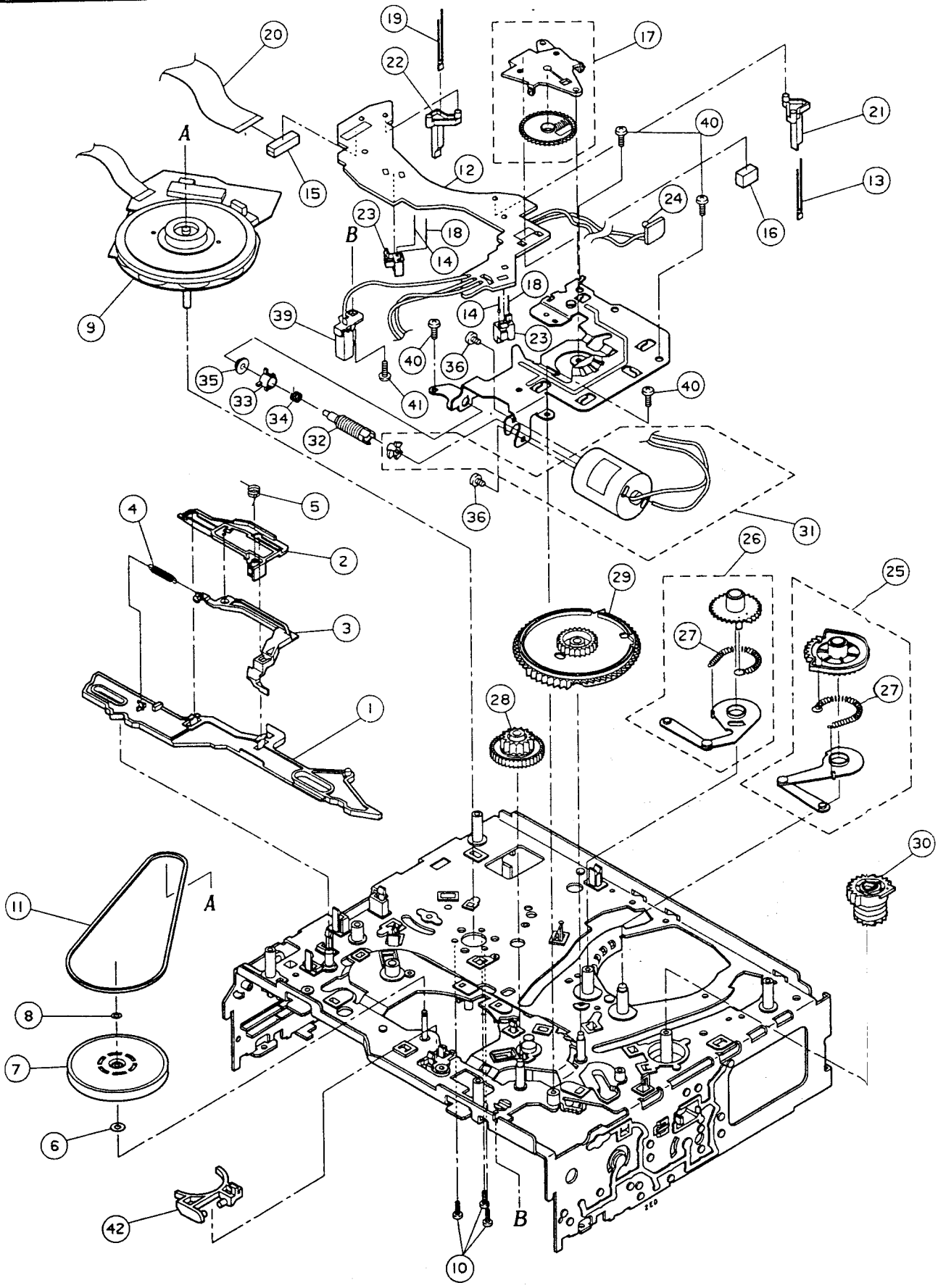


3. MECHA BLOCK (1)

Ref.No.	Part No.	Description
1	ML-387316J	MAIN BRAKE (S) PART
2	ML-387318J	MAIN BRAKE (T) PART
3	ZG-387320J	SP PULL MAIN BRAKE
4	ML-387321J	REVIEW BRAKE PART
5	ZG-387323J	SP PULL REVIEW BRAKE
6	ML-387423J	ARM LOADING BRAKE
7	ZG-387467J	SP PULL LOADING BRAKE
8	ZW-389814J	PW31X110X050PSL
9	MT-390954J1	DISK (2) PART
10	MI-387294J	IDLLER PART
11	ZG-387438J1	SP PUSH A/C
12	ZG-373900	6SET30X080SCM PKR CP
13	HR-405340J	HEAD COMBO HVMZA1121A
14	ZS-404844J	PAN20X02STL BZN PS1
15	ZS-321298	BID30X08STL CMT
16	ZS-389853J	DT BID30X06STL CMT C080
17	MZ-402760J1	HOLDER FE HEAD PART B
18	MR-387286J1	ROLLER IMPEDANCE
19	ZW-374445	SLIT W17X032X025PSL
20	HE-390013J	HEAD E HVFME0020A [VS-R100]
22	ZS-336714	ST BID30X12STL CMT
23	BL-V1102A050A	TENSION ARM BLK 425EA
24	SZ-387263J4	HOLDER LEVER TENSION
25	ML-390768J4	TENSION BAND PART
26	ZG-387272J	SP PULL TENSION
27	BL-V1102A160A	ARM PINCH ROLLER (2) BLK 425EA
30	ZW-332843	RETAINING RING GRIP 380STL ACP
31	ML-387431J1	SLIDER PINCH PART
32	ML-387277J3	ARM REVIEW PART
33	ZG-387282J	SP TORSION REVIEW
34	ZW-401776J	NUT REVIEW
35	BV-V1102A070A	LEADER S BLK 425EA
36	BV-V1102A080A	LEADER T BLK 425EA
37	VT-387394J1	GUIDE ROLLER D8 PART
38	ZS-374458	6SET20X030SCM PKR FP
39	ML-387428J	SLIDER FRONT LOADING
40	MZ-387335J	GEAR EJECT
41	ML-391745J2	ARM DAMPER
42	ZG-395567J	SP TORSION ARM DAMPER
43	BL-V1102A140A	ARM LOADING BLK 425EA
44	ZG-387417J	SP TORSION LOAD (S)
45	ZG-387418J	SP TORSION LOAD (T)
46	ZG-392831J	SP TORSION JOINT (2)
47	ML-387350J1	ARM LID OPENER
48	BV-V1102A150A	CASSETTE LOAD BLK 425EA
49	ZG-387348J1	SP PLATE HOLDER
50	ZG-387421J	SP TORSION DAMPER (S)
51	ML-387345J	LEVER DAMPER (S)
52	ZG-388290J1	SP TORSION DAMPER (T)
53	ML-387346J	LEVER DAMPER (T)
54	ML-387344J	LEVER LOCK RELEASE
55	ZG-387420J1	SP TORSION RELEASE
56	ML-387349J2	ARM SHUTTER
57	SE-395554J	GUIDE FRONT (2)
58	MZ-387351J1	PLATE UPPER
59	ZS-358936	ST BID30X06STL CMT
60	SZ-391866J1	CUSHION COVER
61	ZG-392294J	SP PLATE EARTH
64	BB-V1130A020A	MECHA DECK BLK F220EA

NOTE:
Parts will not be supplied if they are not listed in the parts list, even if they appear on the assembling illustrations with reference No.

MECHA BLOCK (2)



4. MECHA BLOCK (2)

Ref.No.	Part No.	Description
1	ML-387324J	SLIDER BRAKE PART
2	ML-404944J	SLIDER TRIGGER (2)
3	ML-387402J1	LEVER TRIGGER
4	ZG-387468J	SP PULL SLIDER
5	ZG-387403J	SP TORSION COUPLING
6	ZW-389923J	PW26X060X050PSL
7	MZ-387298J3	DISK CLUTCH PART
8	ZW-387492J	SLIT W21X040X050PSL
9	BM-400682J1	MOTOR DFX-67B3VWB1 [CAPSTAN MOTOR]
10	ZS-365149	PT BID26X06STL CMT
11	MB-387289J	BELT CAPSTAN
12	EA-387496J	PC (#) SENSOR
13	ED-390011J	D LED GL451 INFRARED [D1]
14	ED-390012J	D LED GL4800 INFRARED [D2]
15	EJ-387497J	SOCKET HOUSING 5062-30-10-13 [PS1]
16	EJ-381837J	SOCKET 174074-5 5P [P1]
17	ES-387465J	SW MODE SELECT MMS00070ZLBO [SW1]
18	ET-390010J	TR PHOTO PT4800 [TR2]
19	ET-390009J	TR PHOTO PT493F [TR4]
20	EW-389313J	CORD FFC P1.25 L=120 13P [WP1]
21	MZ-387430J	HOLDER D-LED
22	MZ-387445J	HOLDER S SENSOR
23	MZ-387446J	HOLDER PHOTO SENSOR
24	ET-361490	TR PHOTO PN268 [TR1]
25	MZ-V1102A090A	GEAR TOGGLE (S) BLK 425EA
26	MZ-V1102A100A	GEAR TOGGLE (T) BLK 425EA
27	ZG-387413J1	SP PULL TOGGLE
28	MZ-387332J	GEAR WORM WHEEL
29	MZ-387331J	GEAR CAM SLIDER
30	MZ-387333J	GEAR FRONT LOADING
31	BM-387503J	MOTOR PART [LOADING MOTOR]
32	MZ-387330J	GEAR WORM PART
33	MR-391968J	PULLEY TRIGGER (2)
34	ZG-387443J	SP TRIGGER
35	MR-387406J	HOLDER THRUST WORM
36	ZS-425981	BID30X03STL CMT
39	ES-373099	SW LEAF MTS10110MPC1
40	ZS-389950J	PT BID26X10STL CMT
41	ZS-358936	ST BID30X06STL CMT
42	ML-387311J2	ARM COUPLING

NOTE:
Parts will not be supplied if they are not listed in the parts list, even if they appear on the assembling illustrations with reference No.

5. P.C BOARD BLOCK

Ref.No.	Part No.	Description
1A	BA-VA032A600A	PC (#) MAIN BLK P100EM
1B	BA-VA033A600A	PC (#) MAIN BLK R100EM
1C	BA-VA033A600B	PC (#) MAIN BLK R100EDG
2A	BA-VA032A750A	PC (#) P.O.P BLK P100EM
2B	BA-VA032A750B	PC (#) P.O.P BLK R100EM
2C	BA-VA032A750C	PC (#) P.O.P BLK R100EDG

PC (#) MAIN BLK CONSISTS OF FOLLOWING P.C BOARD.
- VIDEO P.C BOARD
- AUDIO/CONTROL P.C BOARD

PC (#) P.O.P BLK CONSISTS OF FOLLOWING P.C BOARD.
- PRE AMP P.C BOARD
- OPERATION P.C BOARD
- POWER P.C BOARD

6. VIDEO P.C BOARD

Ref.No.	Part No.	Description
D101	ED-386226J	D SCHOTTKY RB100AT-32T26 40/1
D102	ED-307572	D SILICON H 1SS131 [EM]
D104	ED-307572	D SILICON H 1SS131
D105	ED-307572	D SILICON H 1SS131
D106	ED-386090J	D ZENER H HZS5.1B3S F05
D107	ED-386090J	D ZENER H HZS5.1B3S F05
D108	ED-386226J	D SCHOTTKY RB100AT-32T26 40/1
D201	ED-307572	D SILICON H 1SS131 [R100]
D202	ED-307572	D SILICON H 1SS131
D203	ED-307572	D SILICON H 1SS131
D204	ED-307572	D SILICON H 1SS131
DL201	EH-390730J	DL EFD-JF124A13J
DL202	EH-732509J	DL EFD-HF645A45A
IC101	EI-403234J1	IC LA7391A
IC102	EI-394856J	IC LC8992
IC281	EI-732508J	IC M52063SP [EM]
L101	EO-376603	COIL FIX 1 LF-5.0S F05 150K
L102	EO-381192J	COIL FIX 1 EL0405SKI 270K
L104	EO-388161J	COIL FIX 1 EL0405SKI 560K
L105	EO-376860	COIL FIX 1 LF-5.0S F05 820K
L106	EO-380734J	COIL FIX 1 LF-5.0S F05 6R8K
L107	EO-376600	COIL FIX 1 LF-5.0S F05 101K
L108	EO-376860	COIL FIX 1 LF-5.0S F05 820K
L109	EO-376600	COIL FIX 1 LF-5.0S F05 101K
L110	EO-345880	COIL FIX 1 EL0606SKI 820J
L111	EO-376600	COIL FIX 1 LF-5.0S F05 101K
L201	EO-403270J	COIL FIX 1 EL0405RA T05 101J
L202	EO-381195J	COIL FIX 1 EL0405SKI 331K
L203	EO-381197J	COIL FIX 1 EL0405SKI 471K
L204	EO-376860	COIL FIX 1 LF-5.0S F05 820K
L205	EO-403937J	COIL FIX 1 EL0405RA T05 4R7J
L206	EO-392817J	COIL FIX 1 EL0405SKI 1R2K
L207	EO-376860	COIL FIX 1 LF-5.0S F05 820K
L208	EO-376603	COIL FIX 1 LF-5.0S F05 150K
L209	EO-376603	COIL FIX 1 LF-5.0S F05 150K [EM]
L210	EO-376603	COIL FIX 1 LF-5.0S F05 150K [EM]
L211	EO-345880	COIL FIX 1 EL0606SKI 820J
L212	EO-376860	COIL FIX 1 LF-5.0S F05 820K
L281	EO-376600	COIL FIX 1 LF-5.0S F05 101K [EM]
PJ101A	EJ-732841J	PIN J YKC21-3242 2P [P100]
PJ101B	EJ-732842J	PIN J YKC21-3241 4P [R100]
Q101	ET-353897	TR DTC114ES [EM]
Q102	ET-353899	TR 2SA1317 S,T,U
Q103	ET-353899	TR 2SA1317 S,T,U
Q104	ET-354414	TR DTC144ES
Q105	ET-353899	TR 2SA1317 S,T,U
Q106	ET-353899	TR 2SA1317 S,T,U
Q107	ET-356336	TR DTA114ES
Q108	ET-397160J	TR 2SC3330 R,S,T,U,V
Q109	ET-354414	TR DTC144ES
Q110	ET-353899	TR 2SA1317 S,T,U
Q111	ET-397160J	TR 2SC3330 R,S,T,U,V
Q112	ET-397160J	TR 2SC3330 R,S,T,U,V
Q113	ET-356336	TR DTA114ES
Q115	ET-356224	TR 2SA1286 G,H,J F05
Q116	ET-356224	TR 2SA1286 G,H,J F05
Q201	ET-397160J	TR 2SC3330 R,S,T,U,V
Q202	ET-397160J	TR 2SC3330 R,S,T,U,V
Q203	ET-397160J	TR 2SC3330 R,S,T,U,V
Q204	ET-356336	TR DTA114ES
Q205	ET-397160J	TR 2SC3330 R,S,T,U,V [R100]
Q206	ET-397160J	TR 2SC3330 R,S,T,U,V
Q207	ET-397160J	TR 2SC3330 R,S,T,U,V
Q208	ET-353897	TR DTC114ES
Q209	ET-354415	TR DTA144ES
Q211	ET-397160J	TR 2SC3330 R,S,T,U,V
Q212	ET-397160J	TR 2SC3330 R,S,T,U,V [EM]
Q213	ET-397160J	TR 2SC3330 R,S,T,U,V [EM]
Q214	ET-360646	TR DTA143ES [EM]
Q215	ET-354414	TR DTC144ES [EM]
Q216	ET-353899	TR 2SA1317 S,T,U
Q217	ET-356224	TR 2SA1286 G,H,J F05
Q218	ET-354414	TR DTC144ES
Q219	ET-353897	TR DTC114ES [EM]
Q220	ET-354414	TR DTC144ES
Q281	ET-353899	TR 2SA1317 S,T,U [EM]
SW101	ES-730499J	SW SLIDE SSSF1
VR101	EV-732649J	R S-FIX H RH0636C 223
VR102	EV-732502J	R S-FIX H RH0636C 103
VR103	EV-732649J	R S-FIX H RH0636C 223
VR104	EV-732501J	R S-FIX H RH0636C 682
VR281	EV-732506J	R S-FIX H RH064BL 103 [EM]
X201	EI-381632J	OSC X'TAL 86686 4.433619MHZ
1A	BV-730498J	RF CONVERTER MDLK5D023A [EM]
1B	BV-732844J	RF CONVERTER MDLK6 6E789A [EDG]

7. AUDIO/CONTROL P.C BOARD

Ref.No.	Part No.	Description
D301	ED-307572	D SILICON H 1SS131
D302	ED-378530J	D ZENER H HZS6B2L F05
D401	ED-307572	D SILICON H 1SS131
D402	ED-307572	D SILICON H 1SS131
D403	ED-307572	D SILICON H 1SS131
D404	ED-307572	D SILICON H 1SS131
D405	ED-388368J	D ZENER H HZS9B3L F05
D406	ED-387763J	D ZENER H HZS7B3L F05
D407	*ED-732510J	D SILICON S5688B
D408	ED-307572	D SILICON H 1SS131
D409	ED-307572	D SILICON H 1SS131
D410	ED-307572	D SILICON H 1SS131
IC301	EI-388360J	IC BA7765AS
IC401	EI-732845J	IC MN675121 P100 MULTI1 NSA
IC402	EI-725303J	IC M51951BSL
IC403	EI-373980	IC BA15218N
IC404	EI-397299J	IC BA6229-U2
L301	EO-717992	COIL FIX 1 EL0607RA 103K [R100]
L302	EO-732647J	COIL FIX 1 EL0607RA 272K [R100]
L303	EO-732646J	COIL FIX 1 LF-7.5 101J
L401	EO-376611	COIL FIX 1 LF-5.0S F05 470K
L402	EO-376600	COIL FIX 1 LF-5.0S F05 101K
Q301	ET-356224	TR 2SA1286 G,H,J F05 [R100]
Q302	ET-397160J	TR 2SC3330 R,S,T,U,V [R100]
Q401	ET-373985	TR DTA144TS
Q402	ET-373985	TR DTA144TS
Q403	ET-354414	TR DTC144ES
Q404	ET-373985	TR DTA144TS
Q405	ET-354414	TR DTC144ES
Q406	*ET-356224	TR 2SA1286 G,H,J F05
Q407	ET-354414	TR DTC144ES
Q408	ET-363953	TR DTA114TS [EM]
Q409	ET-354414	TR DTC144ES [EM]
Q410	ET-397160J	TR 2SC3330 R,S,T,U,V
Q411	ET-370634	TR DTA143XS
Q412	ET-370634	TR DTA143XS
Q413	ET-370634	TR DTA143XS
Q414	ET-370634	TR DTA143XS
Q415	ET-370634	TR DTA143XS
Q416	ET-370634	TR DTA143XS
Q417	ET-370634	TR DTA143XS
Q418	ET-370634	TR DTA143XS
Q419	ET-353899	TR 2SA1317 S,T,U
R435	*ER-391043J	R FUSE H S10 RF25SC 1/6W R47K
T301	EO-730665J	OSC BLK
VR301	EV-732505J	R S-FIX V RH0632C 472
VR302	EV-732504J	R S-FIX V RH0632C 473
VR401	EV-725302J	R S-FIX V RH0652C 104
VR402	EV-732843J	R S-FIX V VG067 THT 333
X401	EI-389640J	OSC X'TAL HC-49/U 8000KHZ

8. PRE AMP P.C BOARD

Ref.No.	Part No.	Description
D1	ED-307572	D SILICON H 1SS131
IC1	EI-387598J	IC BA7252S
L1	EO-353589	COIL FIX 1 LAP02 F05 5R6K [R100]
L2	EO-376858	COIL FIX 1 LF-5.0S F05 560K
L3	EO-360555	COIL FIX 1 LAP02 F05 180K
L4	EO-345887	COIL FIX 1 EL0606SKI 221J
L5	EO-732646J	COIL FIX 1 LF-7.5 101J
L6	EO-732646J	COIL FIX 1 LF-7.5 101J [R100]
L7	EO-385979J	COIL FIX 1 LF-7.5 F10 181K [R100]
L8	EO-353902	COIL FIX 1 LAP02 F05 680K [R100]
L9	EO-351860	COIL FIX 1 LAP02 F05 8R2K [R100]
L10	EO-376603	COIL FIX 1 LF-5.0S F05 150K [R100]
L11	EO-376860	COIL FIX 1 LF-5.0S F05 820K
L12	EO-732646J	COIL FIX 1 LF-7.5 101J
L13	EO-376606	COIL FIX 1 LF-5.0S F05 180K
Q1	ET-353899	TR 2SA1317 S,T,U
Q2	ET-397160J	TR 2SC3330 R,S,T,U,V
Q3	ET-397160J	TR 2SC3330 R,S,T,U,V
Q4	ET-354414	TR DTC144ES [EM]
Q5	ET-397160J	TR 2SC3330 R,S,T,U,V
Q6	ET-397160J	TR 2SC3330 R,S,T,U,V
Q7	ET-353899	TR 2SA1317 S,T,U
Q8	ET-353899	TR 2SA1317 S,T,U
Q9	ET-373985	TR DTA144TS
Q10	ET-397160J	TR 2SC3330 R,S,T,U,V
Q11	ET-354414	TR DTC144ES
Q12	ET-354364	TR DTC143TS
VR1	EV-732497J	R S-FIX V RH0632C 102
VR2	EV-732498J	R S-FIX V RH0632C 471

9. OPERATION P.C BOARD

Ref.No.	Part No.	Description
D801	ED-730668J	D LED SPB-25MVWF
D802	ED-732495J	D LED SLR-331VC70F070 RED
D803	ED-732495J	D LED SLR-331VC70F070 RED
D804	ED-732495J	D LED SLR-331VC70F070 RED
D805	ED-732495J	D LED SLR-331VC70F070 RED
D806	ED-732495J	D LED SLR-331VC70F070 RED
D807	ED-732495J	D LED SLR-331VC70F070 RED
L801	EO-376600	COIL FIX 1 LF-5.0S F05 101K
SW801	ES-732849J	SW TACT SKHVBL [POWER]
SW802	ES-732849J	SW TACT SKHVBL [R100,REC]
SW803	ES-732849J	SW TACT SKHVBL [STOP/EJECT]
SW804	ES-732849J	SW TACT SKHVBL [PLAY]
SW805	ES-732849J	SW TACT SKHVBL [STILL/PAUSE]
SW806	ES-732849J	SW TACT SKHVBL [REW]
SW807	ES-732849J	SW TACT SKHVBL [FF]
Z801	ET-732496J	DETECTOR GP1U561

10. POWER P.C BOARD

Ref.No.	Part No.	Description
C906	EC-732852J	C EC V KMG 400V 101
C912	EC-404196J	C EC V SXE12 102M 35.0DC
D901	*ED-732853J	D SILICON S1WB (A) 60
D902	ED-732854J	D SILICON EP01C V0
D903	ED-732856J	D SILICON ERA18-04 V3
D904	ED-732857J	D SILICON ERA18-02 V3
D905	ED-732858J	D SILICON AU01Z V0
D906	ED-732858J	D SILICON AU01Z V0
D907	ED-732859J	D SILICON RU3YX LFC4
0908	ED-732860J	D SILICON RU2YX V1
D909	ED-732859J	D SILICON RU3YX LFC4
D910	ED-386226J	D SCHOTTKY RB100AT-32T26 40/1
D911	ED-732510J	D SILICON S5688B
D912	ED-732510J	D SILICON S5688B
D913	ED-732510J	D SILICON S5688B
DJ901	EJ-732866J	J DC HEC 0470-01-630
F901	*EF-364518	FUSE BET T 250V 2.50A
F902	*EF-364518	FUSE BET T 250V 2.50A
FL901	*EO-732865J	COIL LF ELF-18D270H
IC901	EI-732862J	IC STR-D1906
IC902	EI-732863J	IC STK50322
Q901	ET-732861J	TR 2SC4016 P,Q,R
R902	ER-333008	R OMF H S20 FS 2W 2R2J
R906	ER-732850J	R MF RSSX 2W R47J
R912	ER-730134J	R FUSE RF25SC-L10 R22J
R913	ER-730134J	R FUSE RF25SC-L10 R22J
R914	ER-732851J	R FUSE RF25SC-VTP R33K
T901	*EO-732864J	TRANS TS7112V-C
1	*EJ-732867J	SOCKET INLET CCT-9302-0101

11. FINAL ASSEMBLY

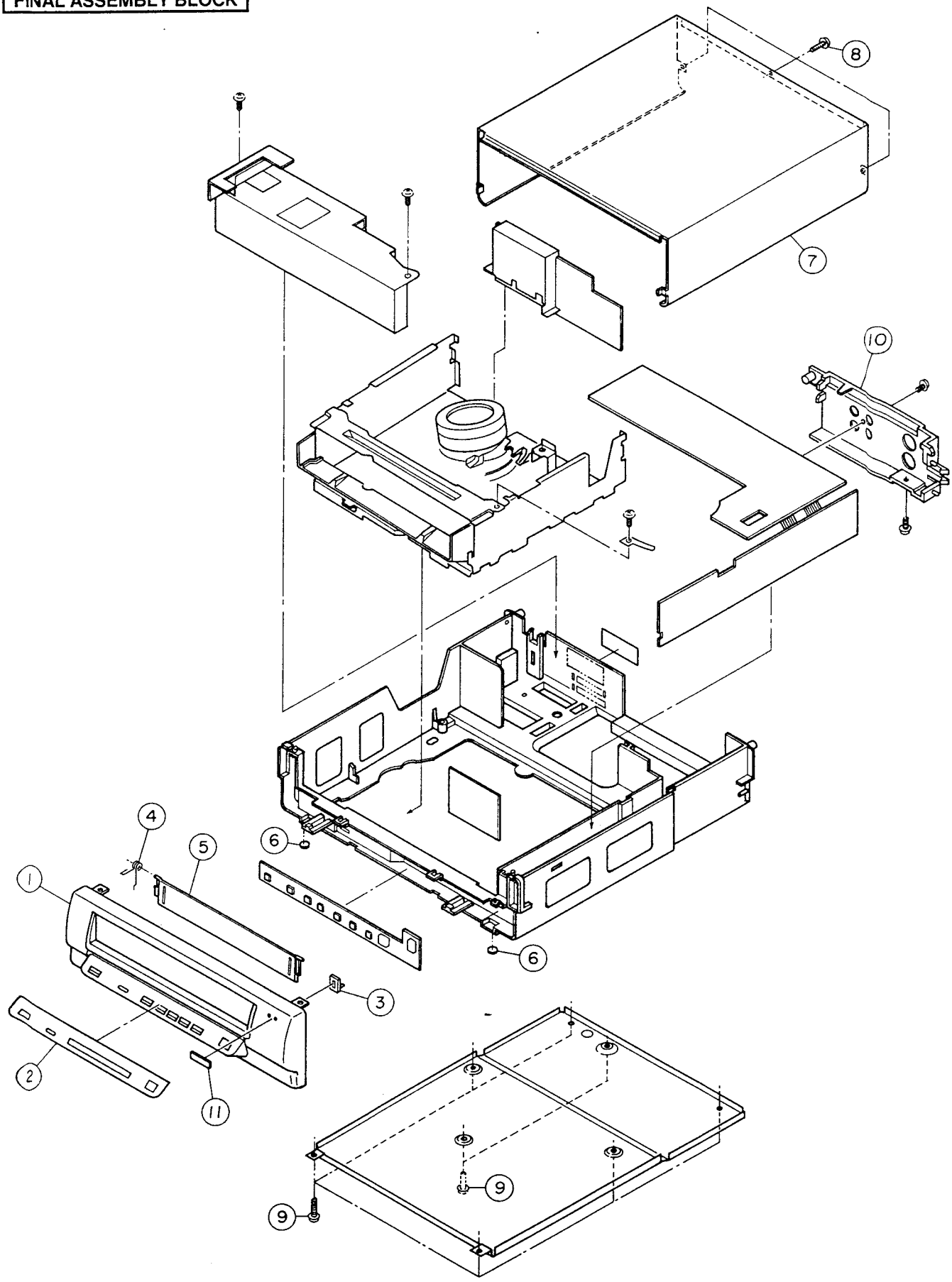
Ref.No.	Part No.	Description
1A	SP-732869J	PANEL FRONT VS-P100
1B	SP-732870J	PANEL FRONT VS-R100
2A	SE-732871J	PLATE OPERATION (P) [P100]
2B	SE-732872J	PLATE OPERATION (R) [R100]
3	SZ-732873J	STOPPER MASK
4	ZG-387370J	SP MASK
5A	SE-407132J	MASK CASSETTE VS-P100EM
5B	SE-407133J	MASK CASSETTE VS-R100EM
5C	SE-407134J	MASK CASSETTE VS-R100EDG
6	SA-387507J	FOOT SX
7	SP-732874J	COVER UPPER VS-P100
8	ZS-331182	BT BID30X08STL BNI
9	ZS-376521	BT BID30X08STL CMT
10A	SP-732846J	PANEL REAR (A) VS-P100EM
10B	SP-732847J	PANEL REAR (B) VS-R100EM
10C	SP-732848J	PANEL REAR (D) VS-R100EDG
11	MZ-395424J	NAME PLATE AKAI (M)-6S

NOTE:
Parts will not be supplied if they are not listed in the parts list, even if they appear on the assembling illustrations with reference No.

12. ACCESSARY

Ref.No.	Part No.	Description
1	EW-348414	CORD PAL
2	EW-732868J	AC CORD (E) VS-R100EDG
3A	AV-B1030A010A	REMOCON BLK RC-V20E [P100]
3B	AV-B1030A010B	REMOCON BLK RC-V21E [R100]

FINAL ASSEMBLY BLOCK



MEMO

AKAI

MODEL VS-P100EM
MODEL VS-R100EM/EDG

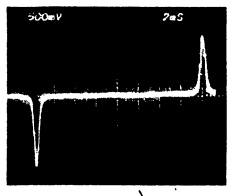
SCHEMATIC DIAGRAMS AND PC BOARDS

TABLE OF CONTENTS

1. SERVO, SYSCON & OPERATION BLOCK DIAGRAM 3
2. VIDEO & AUDIO BLCOK DIAGRAM 4
3. OPERATION AND POWER SUPPLY PC BOARDS 6
4. CONNECTION DIAGRAM 7
5. CONTROL SCHEMATIC DIAGRAM 8
6. PRE AMP AND VIDEO PC BOARDS 10
7. VIDEO/AUDIO/PRE AMP SCHEMATIC DIAGRAM 11
8. RC-V20E/V21E REMOTE CONTROL UNIT SCHEMATIC DIAGRAM 12

Use these schematic diagrams and PC boards together with the provided service manual.

CTL



FROM VIDEO PCB IC101 (52) PIN

R124, R125
C131, C132

V SYNC SEPA

C4
0.047μ/50V

HY-101
VHG-411A

HW HV HU

LB1807

R3
2.7Ω

C5
0.1μ
/25V

EZMP1440N

C1 to C3
0.22μ/50V

0.8Ω

8	FWD/REV
7	CM FG
6	CM CONT
5	LIMIT
4	IDL 5V
3	GND
2	CM POW
1	M GND

P.GND

P402

CAPSTAN MOTOR

CONTROL HEAD

1	CTL (+)	1	P403
2	CTL (−)	2	

M56732L

TSD

REG

CONTROL AMP

DM DRIVE AMP

RECTIFIER

MPX (1)

MPX (2)

H1 H2

FG

PG

6	DM CONT	6
5	M GND	5
4	M 12V	4
3	DM FG	3
2	GND	2
1	DM PG	1

P401

P GND

M 12V

M12V

IDL5V

Q406

Q407

Q408, Q409

R442

R443

VR402
SWITCHING POINT ADJ.

NTSC:ON

D409
D408

Q410

CAPSTAN MOTOR SPEED & PHASE CONTROL OUT

IC403 (2/2)
BA15218N

DRUM MOTOR SPEED & PHASE CONTROL OUT

DRUM ERR AMP

H:ON

Q403

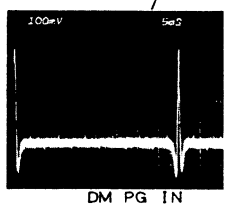
IC403 (1/2)

CAPSTAN ERR AMP

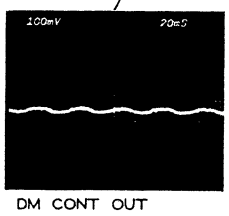
L:ON

Q401

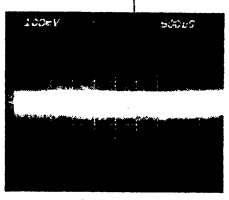
DURM MOTOR



DM PG IN



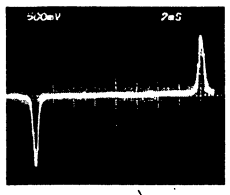
DM CONT OUT



CM CONT OUT

B | C | D | E | F | G | H

CTL



OPERATION PCB

Z801

REMOCON SIGNAL DETECT

FUNCTION KEYS

FROM VIDEO PCB IC101 (32) PIN

R124, R125 C131, C132

V SYNC SEPA

Q108, Q109

AMP

HY-101 VHG-411A

HW HV HU

C4

C3 C2 C1

LB1807

12 FC
11 GND
10 HW-
9 HW+
8 HV-
7 HV+
6 HU-
5 HU+
4 NC
3 U
2 V
1 W

17 FSR
18 REF
19 FG GND
20 FG OUT
21 FG IN+
22 FG IN-1
23 FG IN-2
24 VCC
25 VS
26 RF
27 NC
28 NC

C1 to C3 0.22μ/50V

0.8Ω

P402

8	FWD/REV	
7	CM FG	
6	CM CONT	
5	LIMIT	
4	IDL 5V	
3	GND	
2	CM POW	
1	M GND	P.GND

CONTROL HEAD

P403

1	CTL (+)	1
2	CTL (-)	2

M56732L

TSD

REG

CONTROL AMP

DM DRIVE AMP

RECTIFIER

MPX (1)

DM DRIVE AMP

RECTIFIER

MPX (2)

H1 H2

P401

6	DM CONT	6
5	M GND	5 → P GND
4	M 12V	4 → M 12V
3	DM FG	3
2	GND	2
1	DM PG	1

Q410

CAPSTAN MOTOR SPEED & PHASE CONTROL OUT

M12V

IDL5V

Q406

Q407

IC401 MN675121

V.SYNC REMOCON TRP REC SAF E.S S.S KEY ENVE DET STBY V_{DD} POWER REPEAT REC PLAY FF CENTER REW C.ROT NTSC

A.V_{DD} CO AGC CTL.G CTL.A CTL.H CTL.S R CTL.N R CTL.S TPZ CIF CIR VRI VRO A.Vss YPG YFG AFG FGF FGI PG.MM

CMD NP PICTURE TV/VIDEO EM/EM TRQ UP LM R LM F P100/R100 RSW4 RSW3 RSW2 RSW1 RESET GND

AV.MM A.MUTE DM STOP F/R TRICK CM UP HI SPEED PB EE Vss OSC2 OSC1 REC S CM STOP DFV DPD CFV CPD VP SWP

D409 D408

Q408, Q409

R442 R443 VR402 SWITCHING POINT ADJ.

NTSC:ON

X401

TO LED D Q411 TO

TO PRE AMP

IC403 (2/2) BA15218N

DRUM MOTOR SPEED & PHASE CONTROL OUT

DRUM ERR AMP

DRUM MOTOR STOP D402

CAPSTAN MOTOR SPEED PULSE

DM SPEED ERROR

DM PHASE ERROR

LPF

CAPSTAN MOTOR STOP

H:ON Q403

IC403 (1/2)

CAPSTAN ERR AMP

D401

CM SPEED ERROR

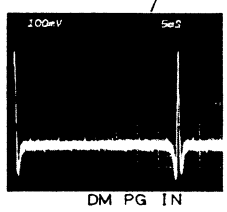
CM PHASE ERROR

L:ON Q402

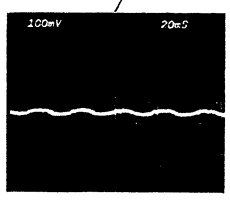
L:ON Q401

CAPSTAN GAIN CONTROL (L:TORQUE U

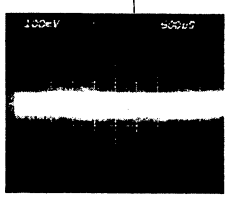
MOTOR



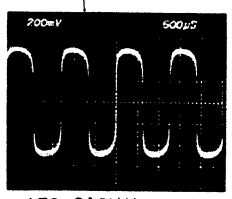
DM PG IN



DM CONT OUT



CM CONT OUT



AFG SIGNAL

CAPS
CAPS
DRUM
DRUM

B | C | D | E | F | G | H

OPERATION PCB

Z801

REMOCON SIGNAL DETECT

FUNCTION KEYS

R124, R125
C131, C132

Q108, Q109

V SYNC SEPA

AMP

REC SAFETY SW
(R100 ONLY)

(ON → REC ENABLE)

IDL5V

SENSOR PCB

SENSOR (S) PCB

PTR1

START SENSOR

D1

PTR4

END SENSOR

START SENSOR

TAKE UP REEL
PULSE GENERATOR

PTR2

D2

MODE SW
(MECHA POSITION DETECT)

M12V

M12V

07

IDL5V

IDL5V

TO LED DRIVER
Q411 TO Q418

54 V.SYNC
55 REMOCON
56 TRP
57 REC SAF
58 E.S
59 S.S
70 KEY
71 ENVE DET
72 STBY
73 V_{DD}
74 POWER
75 REPEAT
76 REC
77 PLAY
78 FF
79 CENTER
80 REW
81 C.ROT
82 NTSC
83
84

IDL5V

63 A.V_{DD}
62 CO
61 AGC
60 CTL.G
59 CTL.A
58 CTL.H
57 CTL.S
56 R CTL.N
55 R CTL.S
54 TPZ
53 CIF
52 CIR
51 VRI
50 VRO
49 A.Vss
48 YPG
47 YFG
46 AFG
45 FGF
44 FGI
43 PG.MM

IC401
MN675121

1 CMD
2 NP
3 PICTURE
4 TV/VIDEO
5 EM/EM
6 TRQ UP
7 LM R
8 LM F
9 P100/R100
10 RSW4
11 RSW3
12 RSW2
13 RSW1
14
15
16
17
18
19
20 RESET
21 GND

D406

H:ON

7V

D405

9V

Q405

IC404
BA6229

DRIVER

PRE

LOGIC

LM+

LM-

LOADING MOTOR

MOTOR 16V

IC402 M51951BSL

BACK UP VOLTAGE DETECTOR

IDL5V

D409

D408

Q408, Q409

R442

R443

VR402
SWITCHING POINT ADJ.

NTSC:ON

42 AV.MM
41 A.MUTE
40 DM STOP
39 F/R
38 TRICK
37 CM UP
36 HI SPEED
35 PB
34 EE
33 Vss
32 OSC2
31 OSC1
30 REC S
29 CM STOP
28 DFV
27 DPD
26 CFV
25 CPD
24 VP
23 SWP
22

X401

TO VIDEO PCB
TO AUDIO PCB

IDL5V

IC403 (2/2)
BA15218N

DRUM MOTOR SPEED & CONTROL OUT

DRUM ERR AMP

DRUM MOTOR STOP

D402

CAPSTAN MOTOR SPEED PULSE

DM SPEED ERROR

LPF

DM PHASE ERROR

LPF

CAPSTAN MOTOR STOP

IDL5V

IC403 (1/2)

CAPSTAN ERR AMP

D401

CM SPEED ERROR

LPF

IDL5V

L:ON

CM PHASE ERROR

LPF

L:ON

Q402

Q401

CAPSTAN GAIN CONTROL (L:TORQUE UP)

TO PRE AMP

CONTROL/ (AUDIO) PCB

V SYNC

REC CTL SIGNAL

DM PG IN
f=599.79Hz

DM SPEED ERROR PULSE

DM PHASE ERROR PULSE

SWITCHING PULSE

CM PHASE ERROR PULSE

CM SPEED ERROR PULSE

CM CONT OUT

AFG SIGNAL

CAPSTAN MOTOR PHASE

CAPSTAN MOTOR SPEED

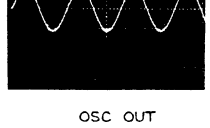
DRUM MOTOR PHASE

DRUM MOTOR SPEED

VS-P100EM
VS-R100EM/EDG
SERVO, SYSCON & OPERATION
BLOCK DIAGRAM

No.2-1 VA03351M
A1

CHROMA ENVE



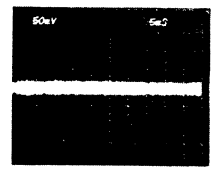
VIDEO SWP

REC FM SIGNAL IN

REC SIGNAL OUT

OSC OUT

REC Y IN



VS-R100 ONLY

AUDIO OUT
VIDEO OUT
AUDIO IN
VIDEO IN
RF OUT
ANT. IN
RF CONVERTOR
A. IN
V. IN

IC281 M52063SP
(NTSC→PAL PHASE)
CORRECTOR

IC1 BA7252S
(2CH VIDEO PRE AMP)

PB GND
SWP
CH1 CH2
H
PRE AMP
REC ON
PRE AMP
L
VIDEO HEADS
CH-1
CH-2
P1
TP1
P1 ON
CURRENT AMP
CHROMA AMP
BAKI NO AMP
AGC
DET
PB5V
REC S 9V
Q1 Q2 Q3
Q4
NTSC ON
EM ONLY
Q11
Q12
VR1 (REC.Y)
VR2 (REC.CHROMA)
VS-R100 ONLY
Q5 Q6 Q7, Q8 Q9
DATA EXTRACT
C SYNC
Q10

P2 P101
MESECAM
C SYNC
NTSC
GND
PB LC
SWP
REC C
PB Y
PB 5V
REC Y
REC S 9V
ENVE DET

PRE AMP PCB

REC S 9V
AUDIO OUT
AUDIO IN

VS-R100 ONLY
FULL TRACK ERASE.
P302
T301, Q302
OSC
VR302 BIAS LEVEL

VS-R100 ONLY
REC9V
Q301
REC S
FROM CONTROL IC401 (29) PIN

IDL9V
REC EQ (HF)
NTSC
A.MUTE.
VREG
VCC
REC CTRL
REC
EQ1
EQ2
EQ1+EQ2
MUTE
0dB
20dB
LINE
36dB
ALC
PB
EE
NFB (PB EQ)
VR301 PB LEVEL
TWIN T (H TRAP)
ALC REF LEVEL
VS-R100 ONLY
VS-R100 ONLY

VS-R100 ONLY
SIDE TRACK ERASE.
P301
AUDIO REC/PB
(VS-P100:PB ONLY)

IC301 BA7765AS
(AUDIO REC/PB AMP)

CONTROL/AUDIO PCB

Q217
PB
FROM CONTROL PCB IC401 (35) PIN
IDL5V

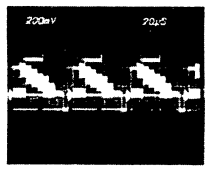
TO CONTROL PCB IC401 (72) PIN
(FOR AUTO TRACKING)
ENVE DET

FROM CONTROL PCB IC401 (22) PIN
SWP

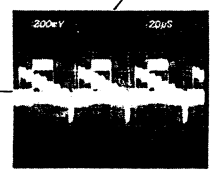
IC101 LA7391 (Y/C SIGNAL PROCESSOR)
VR401 DEV.
Q203
Q202
Q201
Q205

VIDEO PCB

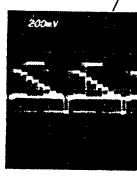
PB Y SIGNAL LINE
REC Y SIGNAL LINE
PB CHROMA SIGNAL LINE
REC CHROMA SIGNAL LINE
AUDIO PB SIGNAL LINE
AUDIO REC SIGNAL LINE



MAIN DE EMPHA OUT (REC)

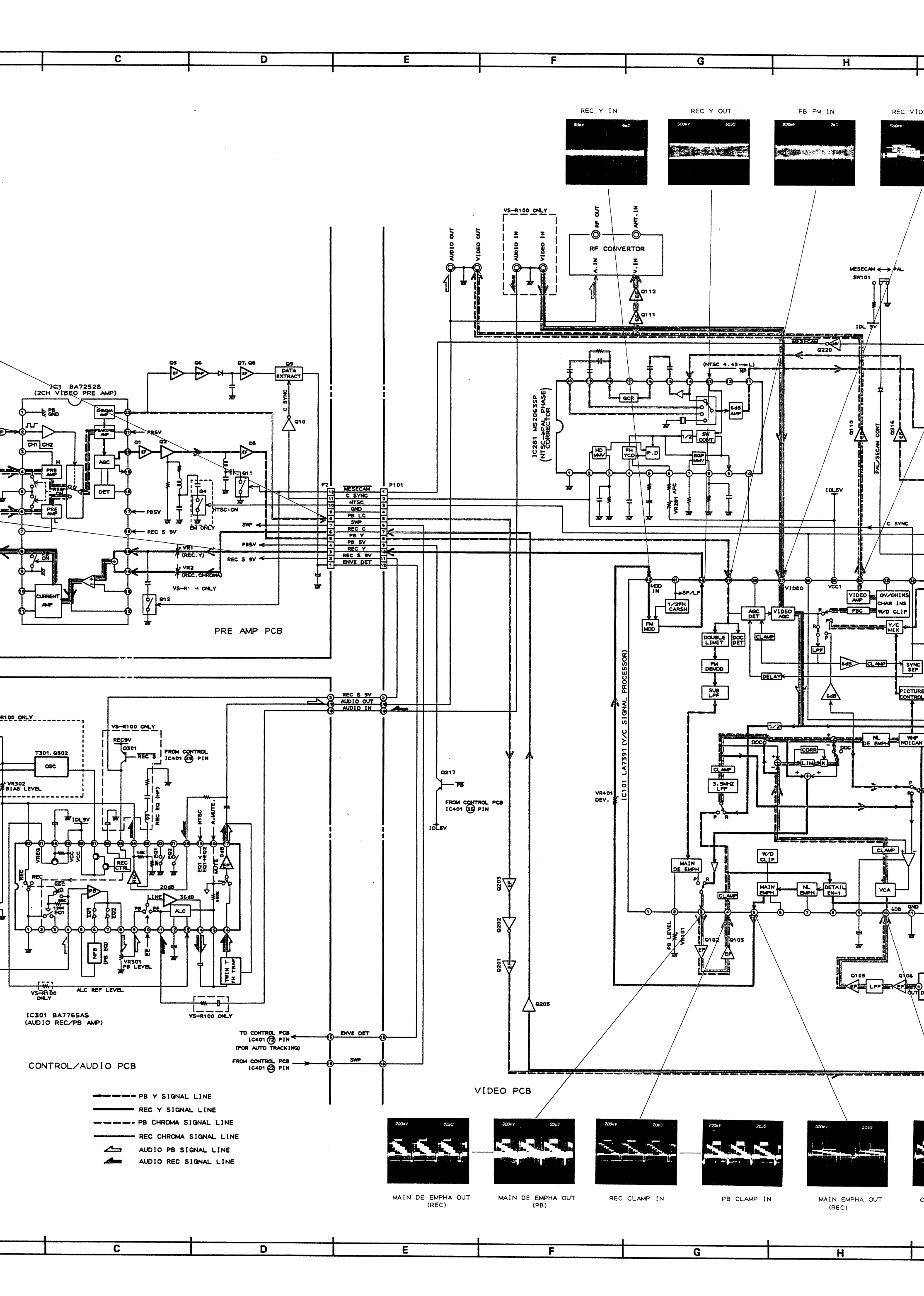


MAIN DE EMPHA OUT (PB)



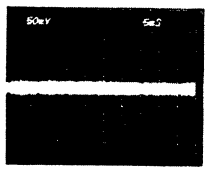
REC CLAMP

C D E F G H

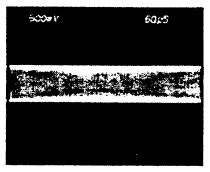


C D E F G H

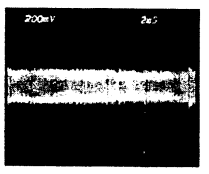
REC Y IN



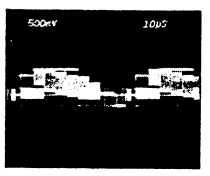
REC Y OUT



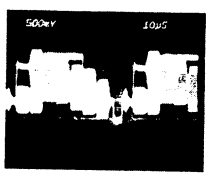
PB FM IN



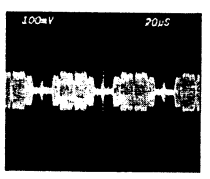
REC VIDEO IN



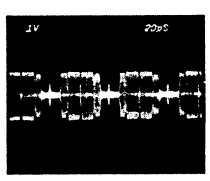
PB VIDEO OUT



PB 4.43MHz IN



PB 4.43MHz OUT



-R100 ONLY

AUDIO IN

VIDEO IN

RF OUT

ANT. IN

RF CONVERTOR

A. IN

V. IN

Q112

Q111

MESECAM ↔ PAL

SW101

IDL 5V

MESECAM

Q220

Q219

Q214

NTSC FROM CONTROL PCB Q409 COLLECTOR

NTSC ON

(NTSC 4.43 → L)

NP

IC281 MS2063SP (NTSC→PAL PHASE CORRECTOR)

GCR

6dB AMP

HD MMV

FH VCO

P.D

1/2

SW CONT

BGP MMV

VR281 AFC

Q110

Q216

PAL/SECAM CONT

Q281

EM ONLY

DL202

Q213

NTSC COMB FILTER 1H DELAY

NTSC ON

NTSC OFF

Q212

PAL COMB FILTER 2H DELAY

DL201

EDG ONLY

Q211

C SYNC

IDL5V

MOD IN

SP/LP

1/2FH CARSH

FM MOD

VIDEO

VCC1

VCC2

VIDEO AMP

QV/CHINS CHAR INS W/D CLIP

AGC DET

VIDEO AGC

FBC

Y/C MIX

4.2V REG

AMP 9dB

P/S DET

COMB

321FH VCO

SLD

PB AMP B.DEEM KILLER

KIL

BGP1

MES

KIL-DET ID-DET

1/8

BGP2

DOUBLE LIMIT

DOC DET

CLAMP

LPF

6dB

SYNC SEP

DELAY

FM DEMOD

SUB LPF

PICTURE CONTROL

COMB DRIVER AMP

PAL 11dB NT 5dB

90° P.S

PB APC DET

REC AFC DET

HALF H. KILLER

BGP GEN

1/2

DOC

NL DE EMPH

WHP NOICAN

B.G.

ACC DET

375NS

4.43M BPF

PAL

4PHASE SHIFTER

RF SW

CORR

LIM

K

CLAMP

3.5MHZ LPF

VR401 DEV.

IC101 LA7391 (Y/C SIGNAL PROCESSOR)

ACC. DET AMP

BURST EMPH

MAIN CONV

5.06M BPF

SUB CONV

BALANCER

3RDLOCK PROTECT

MAIN DE EMPH

W/D CLIP

MAIN EMPH

NL EMPH

DETAIL EN-1

VCA

ATT

1MHZ LPF

REC APC DET

XO

VXO

X2

XO IN

XO OUT

N.C CONT

X201

PB LEVEL VR101

Q102

Q103

6DB

GND

IC102 LC8992

Q105

Q106

CCD 1H DELAY LINE

CLK

Q207

Q206

Q205

Q107

IDL5V

PICTURE (FROM CONTROL IC401 ③ PIN)

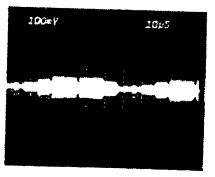
Q209

TRICK:ON

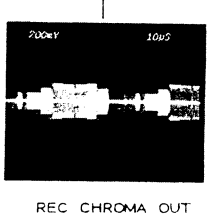
Q208

TRICK (FROM CONTROL IC401 ⑩ PIN)

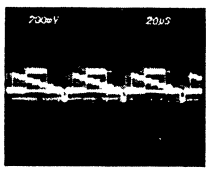
PB CHROMA IN



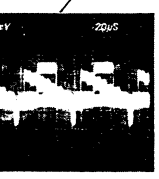
REC CHROMA OUT



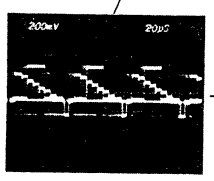
CCD IN (PB)



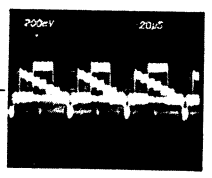
PCB



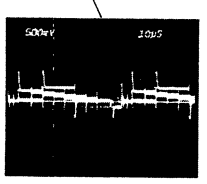
N DE EMPHA OUT (PB)



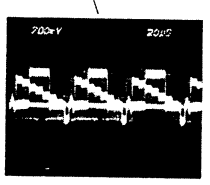
REC CLAMP IN



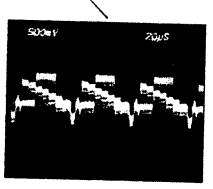
PB CLAMP IN



MAIN EMPHA OUT (REC)



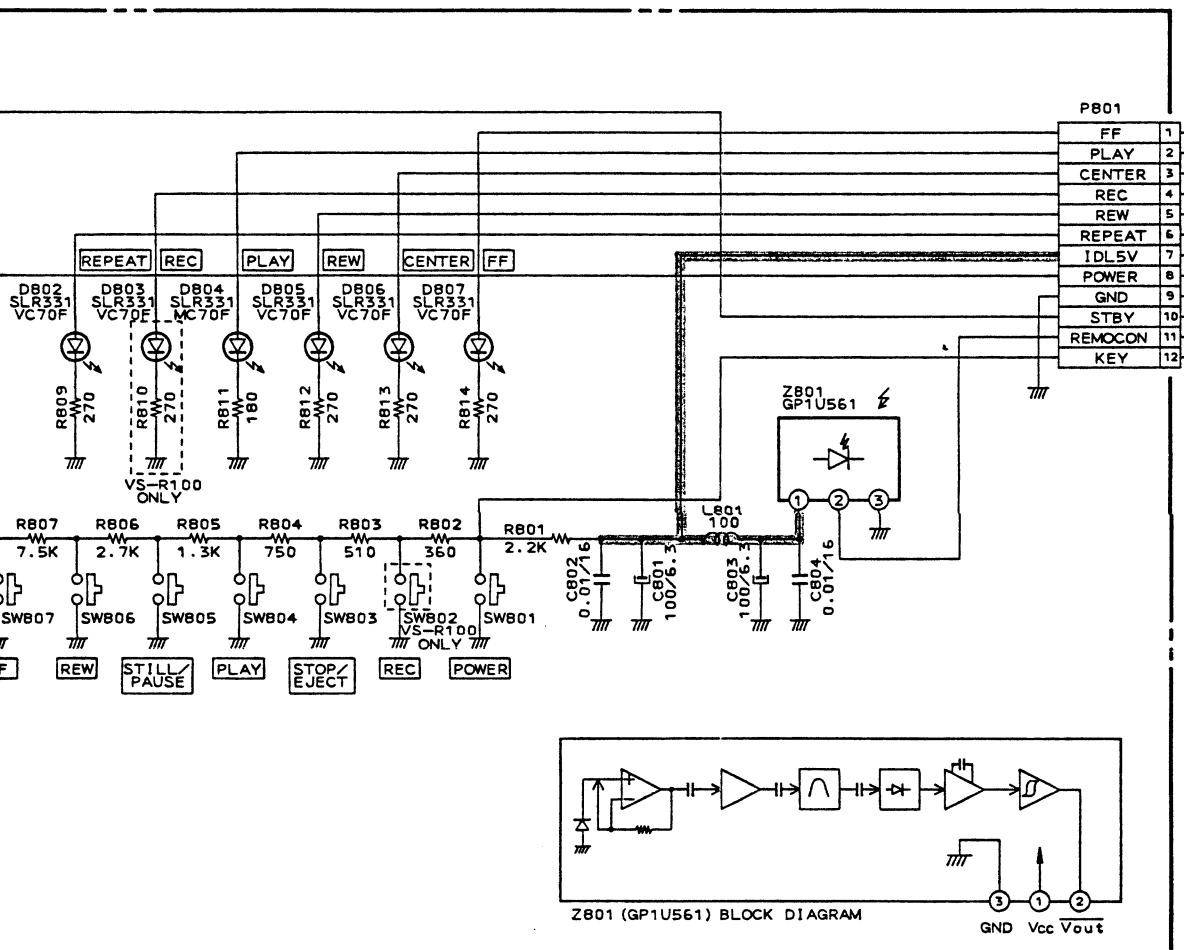
CCD FILTER OUT (PB)



CCD OUT (PB)

VS-P100EM
VS-R100EM/EDG
VIDEO & AUDIO
BLOCK DIAGRAM
No.2-2 VA03352M
A1

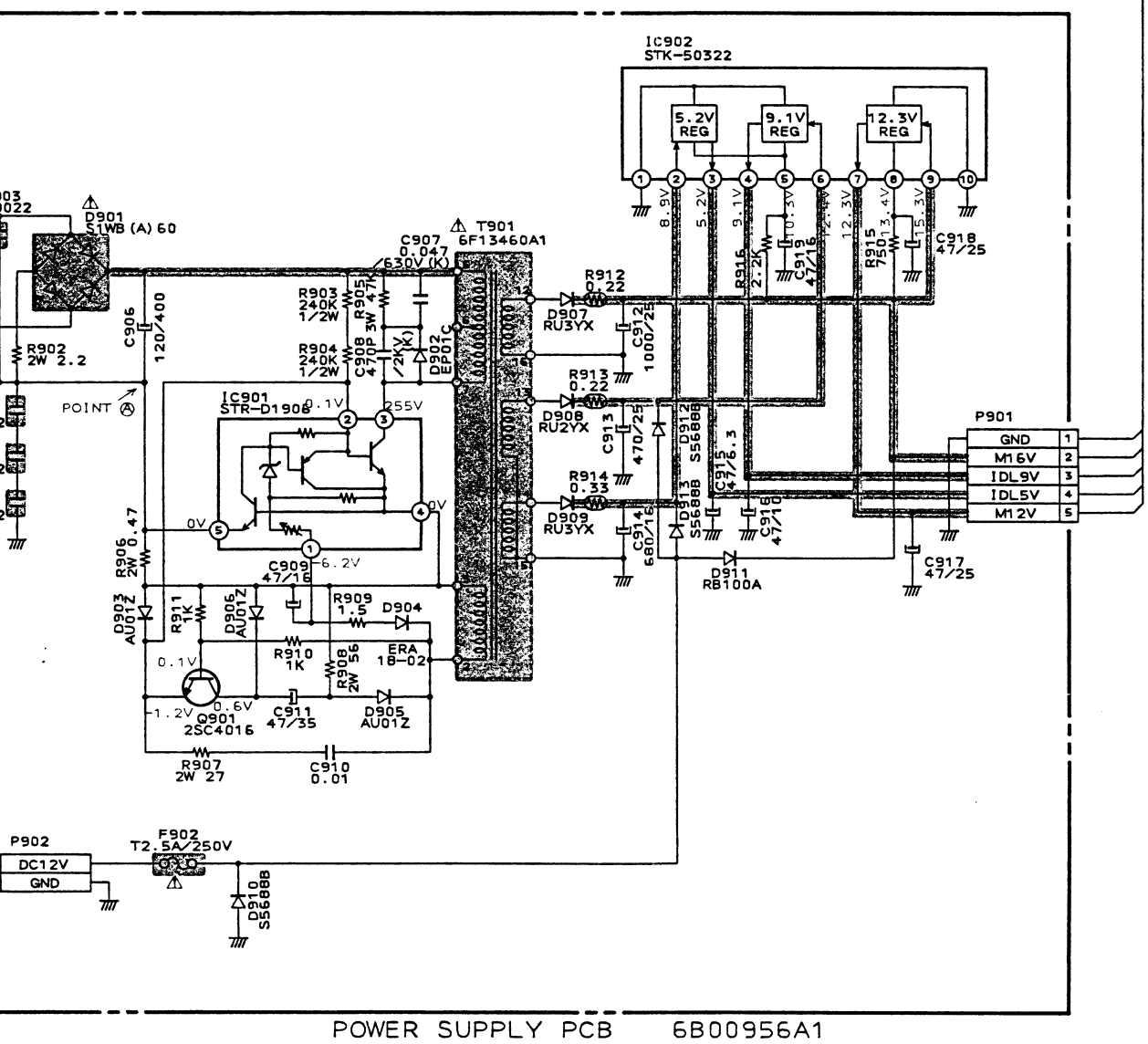
P801
FF 1
PLAY 2
CENTER 3
REC 4
REW 5
REPEAT 6
IDL5V 7
POWER 8
GND 9
STBY 10
REMOCON 11
KEY 12
P405
1 FF
2 PLAY
3 CENTER
4 REC
5 REW
6 REPEAT
7 IDL5V
8 POWER
9 GND
10 STBY
11 REMOCON
12 KEY
STBY
POWER
REPEAT
REC
PLAY
REW
CENTER
FF
R815 270
R808 180
D801 SPB25 MVWF
D802 SLR331 VC70F
D803 SLR331 VC70F
D804 SLR331 MC70F
D805 SLR331 VC70F
D806 SLR331 VC70F
D807 SLR331 VC70F
R809 270
R810 270
R811 180
R812 270
R813 270
R814 270
VS-R100 ONLY
Z801 GP1U561
L801 100
R807 7.5K
R806 2.7K
R805 1.3K
R804 750
R803 510
R802 360
R801 2.2K
SW801~SW807 SKHVBL
SW807
SW806
SW805
SW804
SW803
SW802 VS-R100 ONLY
SW801
C802 0.01/16
C801 100/6.3
C803 100/6.3
C804 0.01/16
FF
REW
STILL/ PAUSE
PLAY
STOP/ EJECT
REC
POWER
Z801 (GP1U561) BLOCK DIAGRAM
GND Vcc Vout
OPERATION PCB 6B00956A1
P406
1 GND
2 M16V
3 IDL9V
4 IDL5V
5 M12V
IC902 STK-50322
5.2V REG
9.1V REG
12.3V REG
F901 T2.5A/250V
L901 ELF18D 270H
C903 0.0022
D901 S1WB (A) 60
C907 0.047 630V (K)
T901 6F13460A1
C901 0.047
C902 0.0068
C904 0.0022
R902 2W 2.2
C906 120/400
C920 0.0022
C921 0.0022
C905 0.0022
EDG AC220V 50Hz
EM AC110~240V 50/60Hz
POINT Ⓐ
IC901 STR-D1908
R903 240K 1/2W
R904 240K 1/2W
R905 47K
C908 470P 3W
D902 EP01C
R912 0.22
R913 0.22
R914 0.33
D907 RU3YX
D908 RU2YX
D909 RU3YX
C912 1000/25
C913 470/25
C914 680/16
C915 47/16.3
C916 47/16
C917 47/25
C918 47/25
R916 2.2K
R915 750
D911 RB100A
D912 S5688B
D913 S5688B
P901
GND 1
M16V 2
IDL9V 3
IDL5V 4
M12V 5
R906 2W 0.47
C909 47/16
D903 AU01Z
R911 1K
D906 AU01Z
R909 1.5
D904
R910 1K
R908 2W 56
ERA 18-02
Q901 2SC4016
C911 47/35
D905 AU01Z
R907 2W 27
C910 0.01
0.1V
0.6V
1.2V
6.2V
255V
0V
SW101
MESECAM
PAL
V.IN
A.IN
V.OUT
A.OUT
VS-R100 ONLY
PJ101
ANT IN
RF OUT
RF CONVERTER
DJ901
P903
P902
F902 T2.5A/250V
D910 S5688B
DC12V
GND
DC JACK PCB 6B00956A1
POWER SUPPLY PCB 6B00956A1
MDLK5D023A: EM
MDLK6E789A: EDC
INDICATED VOLTAGES WERE MEASURED IN STOP MODE.
CONNECT DC VOLTMETER'S NEGATIVE INPUT TO POINT Ⓐ (SHOWN ABOVE) WHEN MEASURING THE PRIMARY SECTION'S VOLTAGES.
NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/4W (J)
ALL CAPACITORS IN μF 50WV (M)
ALL INDUCTORS IN μH (K)
: B (POWER SUPPLY) LINE
WARNING: ⚠ AND INDICATE
COMPONENTS FOR CONT
REPLACE SAFETY CRIT
ONLY WITH MANUFACTU
PARTS
AVERTISSMENT: ⚠ ET , ILS
COMPOSTANTS CRITIQU
POUR MAINTENIR LE DI
DE L'APPAREIL, NE REM
PIÈCES RECOMMANDEES



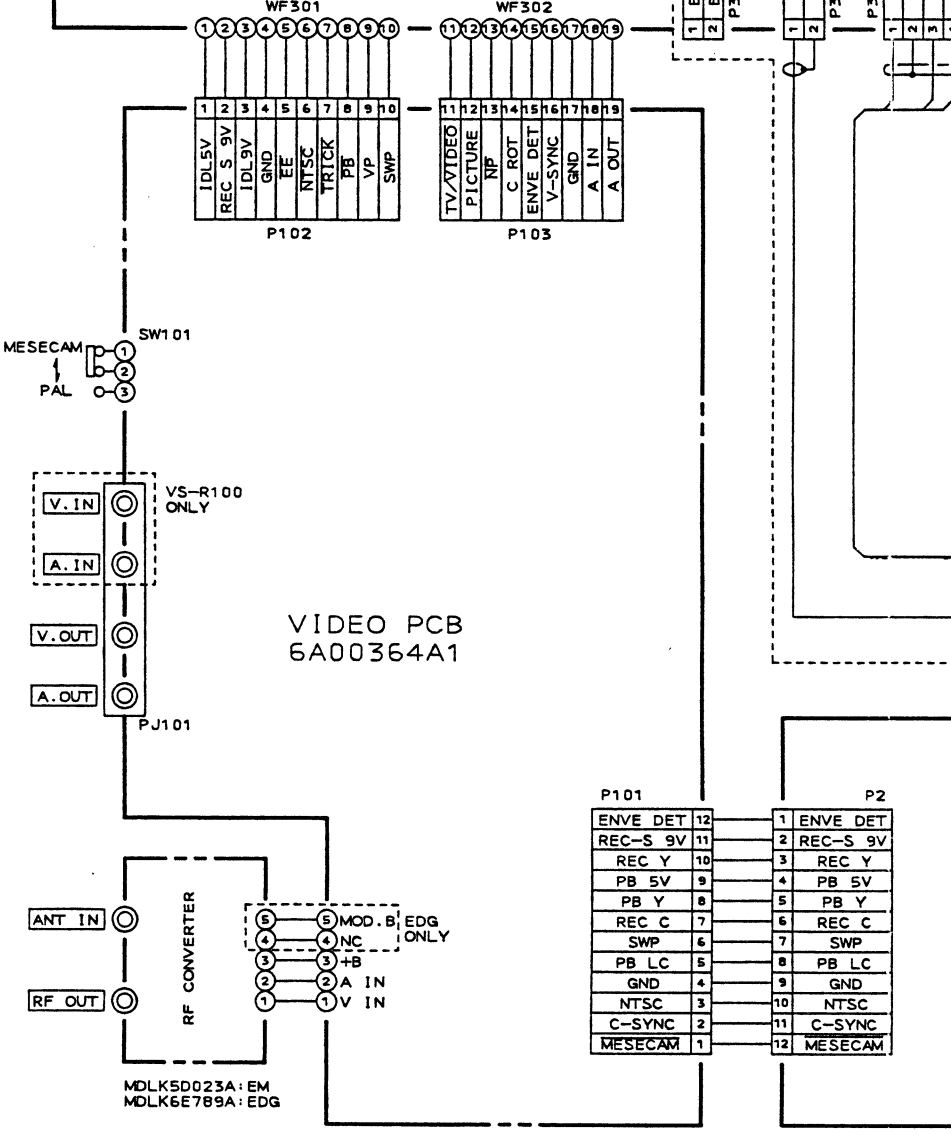
6B00956A1

CONTROL/AUDIO PCB
6A00364A1

P406
1 GND
2 M16V
3 IDL9V
4 IDL5V
5 M12V



POWER SUPPLY PCB 6B00956A1



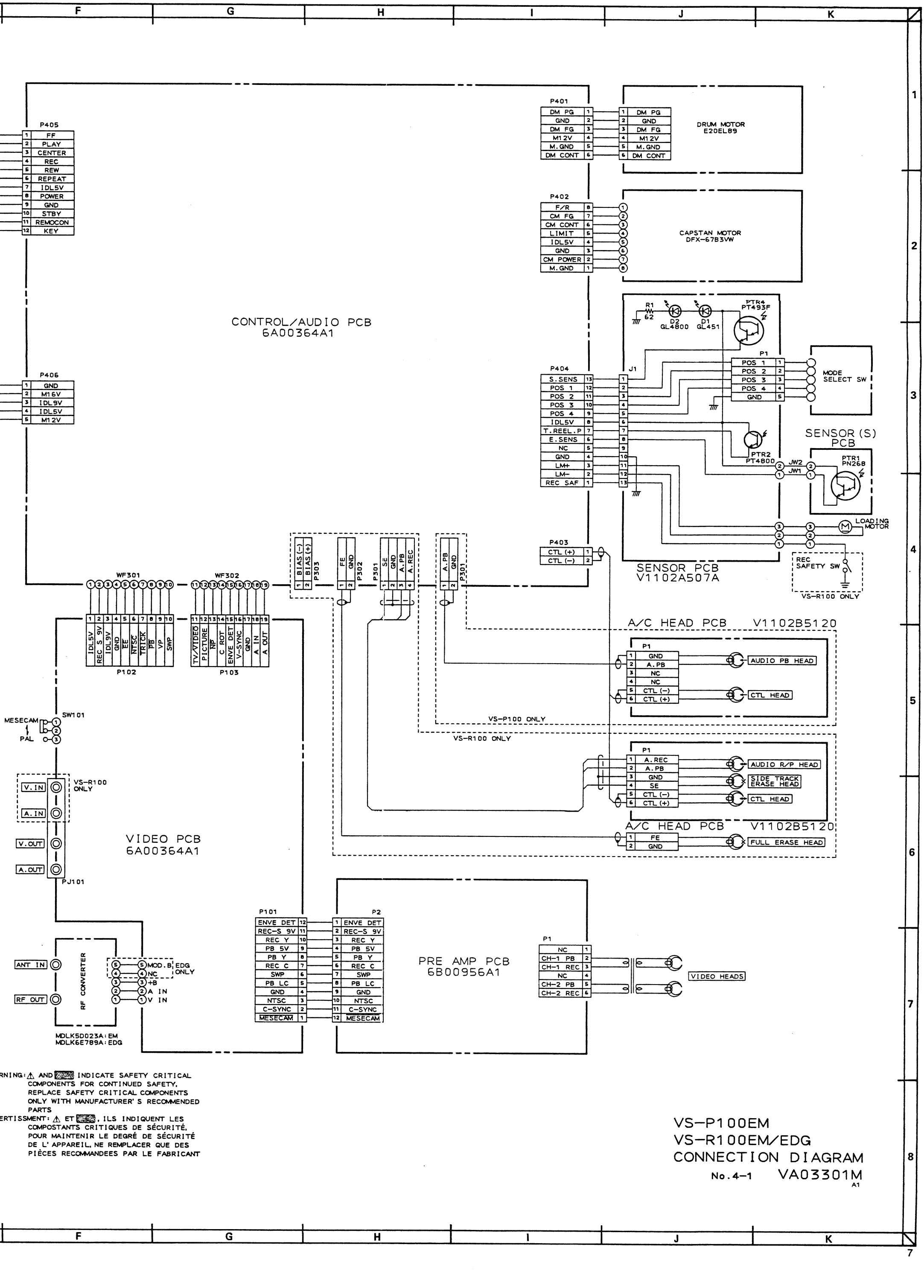
INDICATED VOLTAGES WERE MEASURED IN STOP MODE.
(CONNECT DC VOLTMETER'S NEGATIVE INPUT TO POINT Ⓐ (SHOWN ABOVE) WHEN MEASURING THE PRIMARY SECTION'S VOLTAGES.)

NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/4W (J)
ALL CAPACITORS IN μF 50WV (M)
ALL INDUCTORS IN μH (K)

: B (POWER SUPPLY) LINE

WARNING: ⚠ AND ▒ INDICATE SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY. REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

AVERTISSMENT: ⚠ ET ▒, ILS INDIQUENT LES COMPOSTANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT

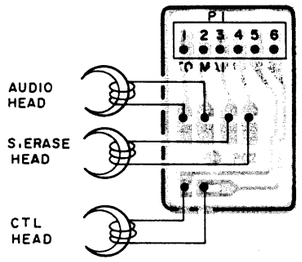


RNING: ⚠ AND ▒▒ INDICATE SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER' S RECOMMENDED PARTS

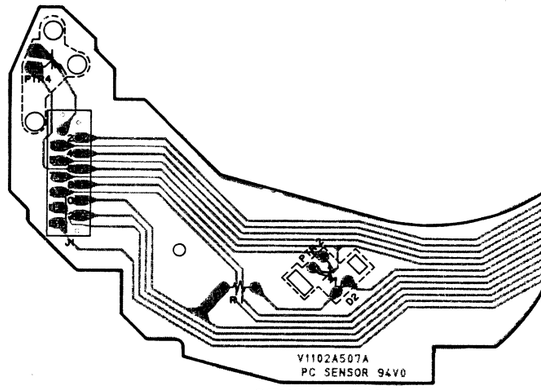
ERTISSMENT: ⚠ ET ▒▒, ILS INDIQUENT LES COMPOSTANTS CRITIQUES DE SÉCURITÉ, POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L' APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT

VS-P100EM
VS-R100EM/EDG
CONNECTION DIAGRAM

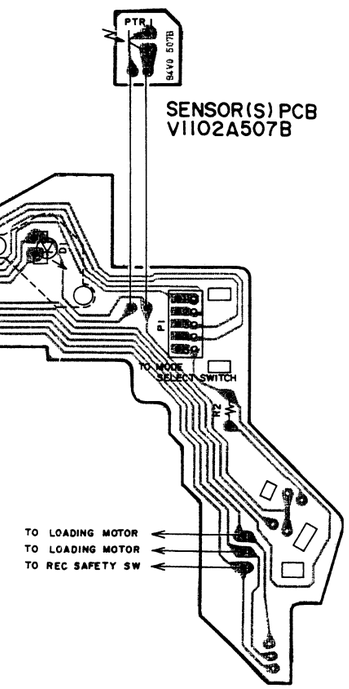
No.4-1 VA03301M
A1

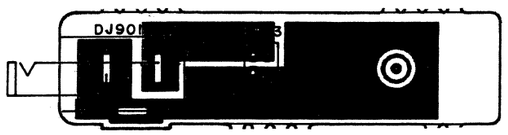


A/C HEAD PCB
V1102B5120J1

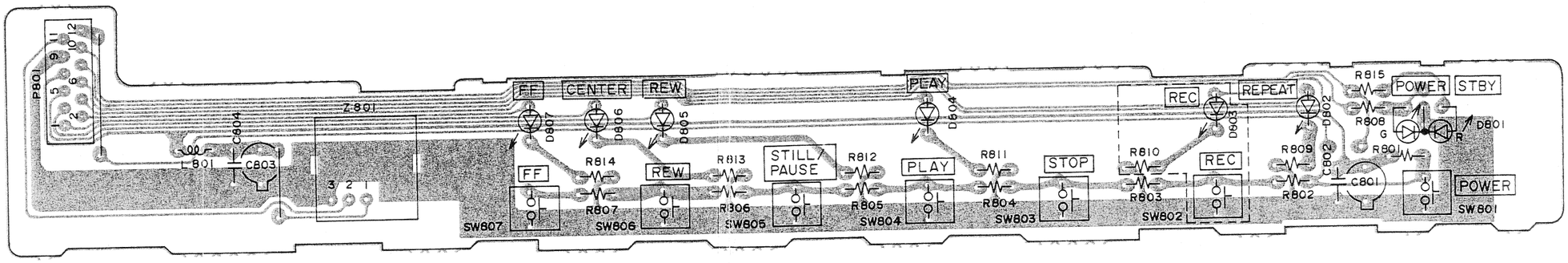


SENSOR PCB
V1102A507A

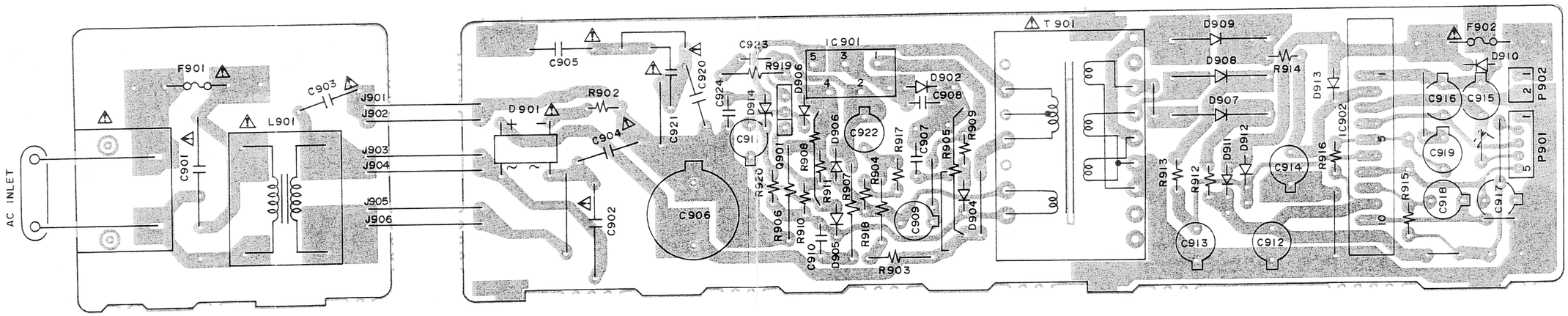




DC JACK PCB 6B00956A1



OPERATION PCB 6B00956AI



POWER SUPPLY PCB 6B00956AI

WARNING: ⚠INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY. REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

AVERTISSEMENT: ⚠IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL. NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT

CONTROL/AUDIO PCB (1/2) 6A00364A1

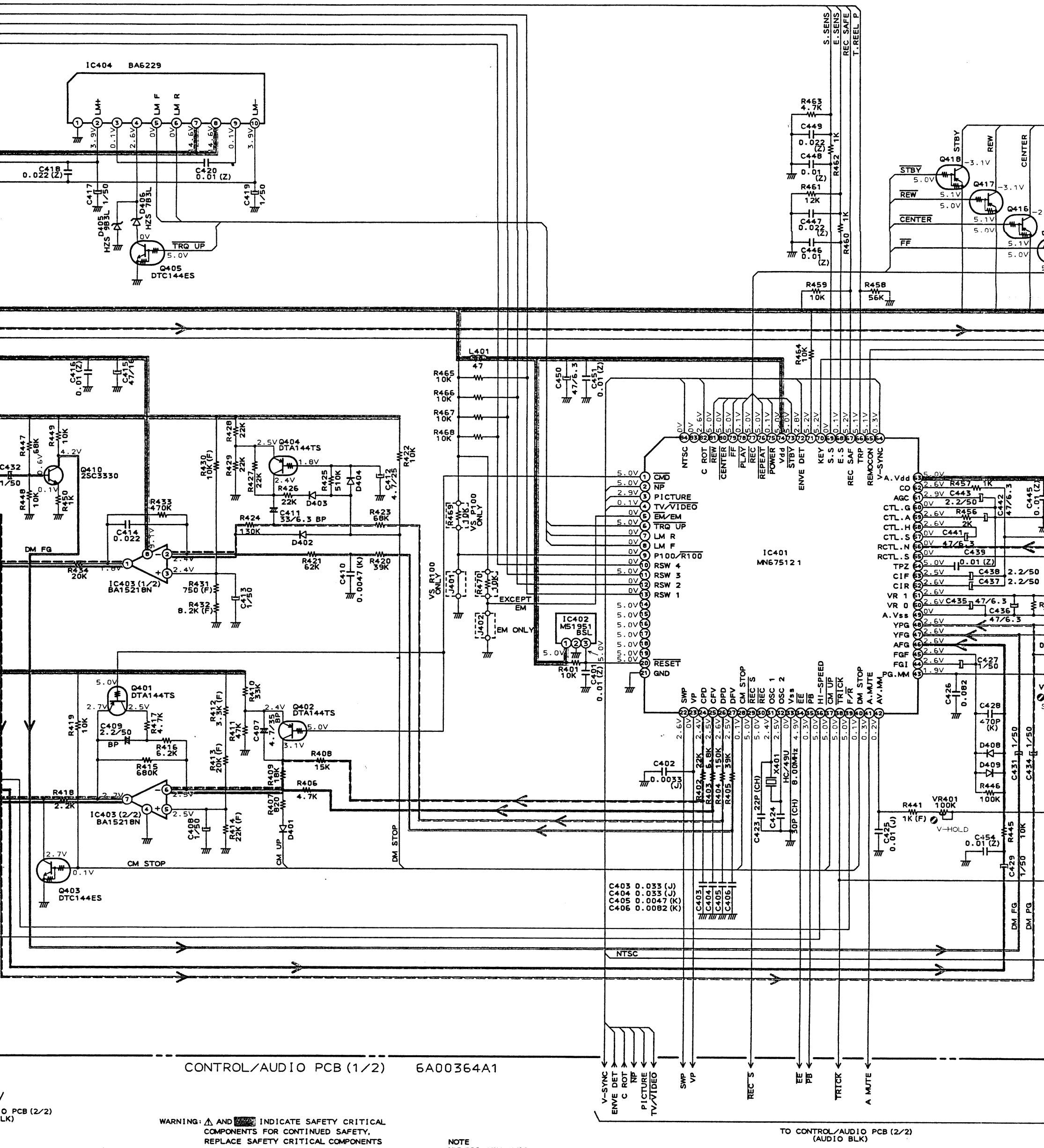
:POWER SUPPLY LINE
:CAPSTAN MOTOR PHASE
:CAPSTAN MOTOR SPEED
:DRUM MOTOR PHASE
:DRUM MOTOR SPEED

WARNING: ⚠ AND ▒▒ INDICATE SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

AVERTISSMENT: ⚠ ET ▒▒, ILS INDIQUENT LES COMPOSTANTS CRITIQUES DE SÉCURITÉ, POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT

NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/4W (J)
ALL CAPACITORS IN μF 50 WV (M)
ALL INDUCTORS IN μH (K)
ALL DIODES ARE 1SS131

INDICATED VOLTAGES WERE MEASURED DURING PB M



CONTROL/AUDIO PCB (1/2) 6A00364A1

TO CONTROL/AUDIO PCB (2/2) (AUDIO BLK)

: POWER SUPPLY LINE
: CAPSTAN MOTOR PHASE
: CAPSTAN MOTOR SPEED
: DRUM MOTOR PHASE
: DRUM MOTOR SPEED

WARNING: ⚠ AND ▓▓ INDICATE SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

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ALL DIODES ARE 1SS131

INDICATED VOLTAGES WERE MEASURED DURING PB MODE.

SPECIFIED
OHMS 1/4W (J)
N µF 50 WV (M)
µH (K)
SS131

ES WERE MEASURED DURING PB MODE.

VS-P100EM
VS-R100EM/EDG
CONTROL
SCHEMATIC DIAGRAM
No.4-2 VA03302M
A1

PRINCIPAL PARTS LOCATION

ICS

IC301 ..... F,G1
IC401 ..... B1,2
IC402 ..... B2
IC403 ..... E1,2
IC404 ..... D2

CONNECTORS

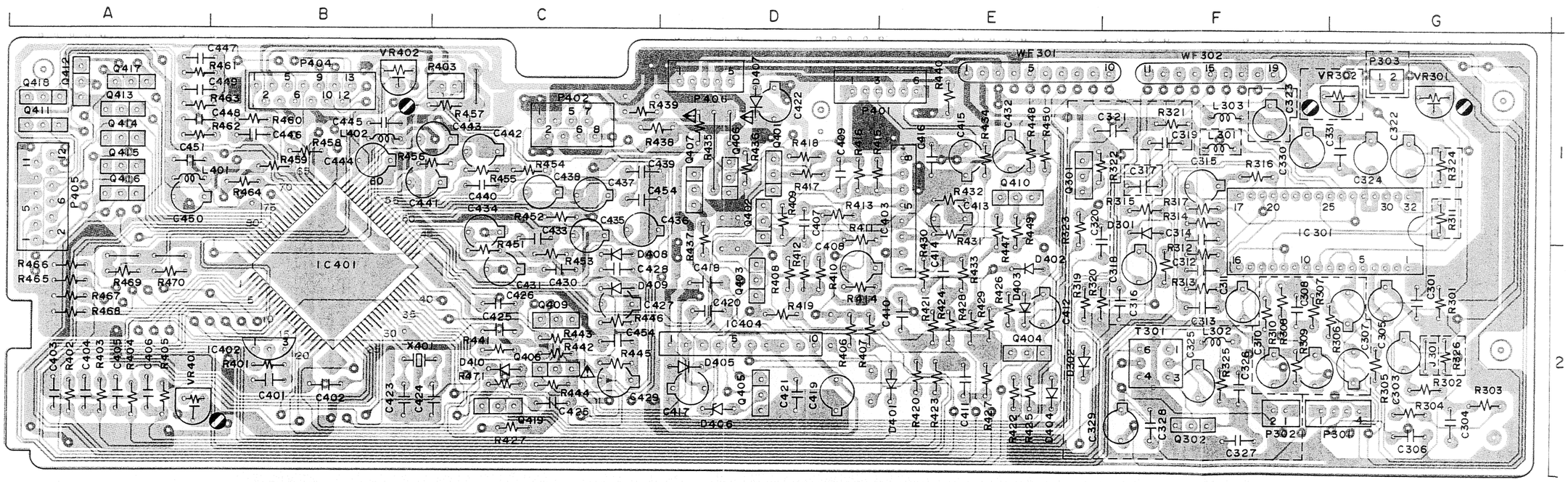
P301 ..... G2
P302 ..... F2
P303 ..... G1
P401 ..... D,E1
P402 ..... C1
P403 ..... C1
P404 ..... B1
P405 ..... A1,2
P406 ..... D1

WFS

WF301 ..... E1
WF302 ..... F1

TRANSISTORS

Q301 ..... E1
Q302 ..... F2
Q401 ..... D1
Q402 ..... D1
Q403 ..... D2
Q404 ..... E2
Q405 ..... D2
Q406 ..... C2
Q407 ..... D1
Q408 ..... C2
Q409 ..... C2
Q410 ..... E1
Q411 ..... A1
Q412 ..... A1
Q413 ..... A1
Q414 ..... A1
Q415 ..... A1
Q416 ..... A1
Q417 ..... A1
Q418 ..... A1
Q419 ..... C2

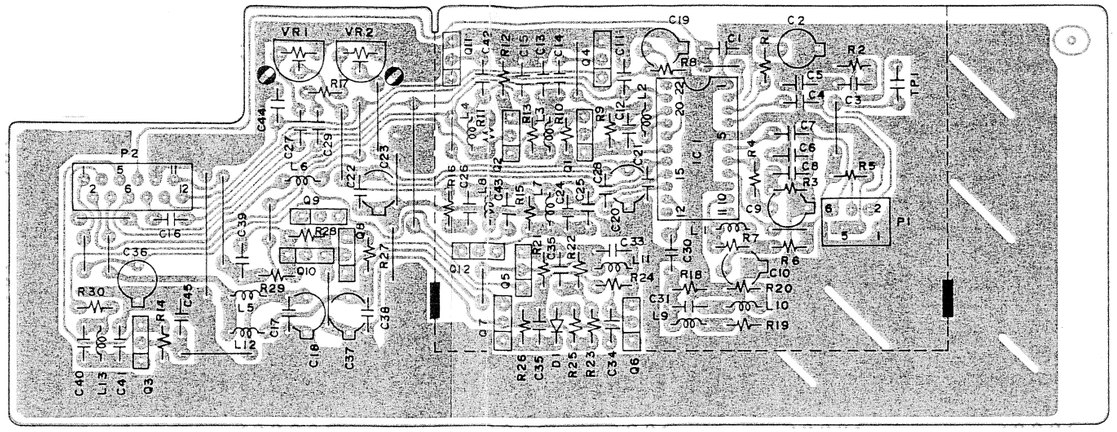


CONTROL / AUDIO PCB 6A00364AI

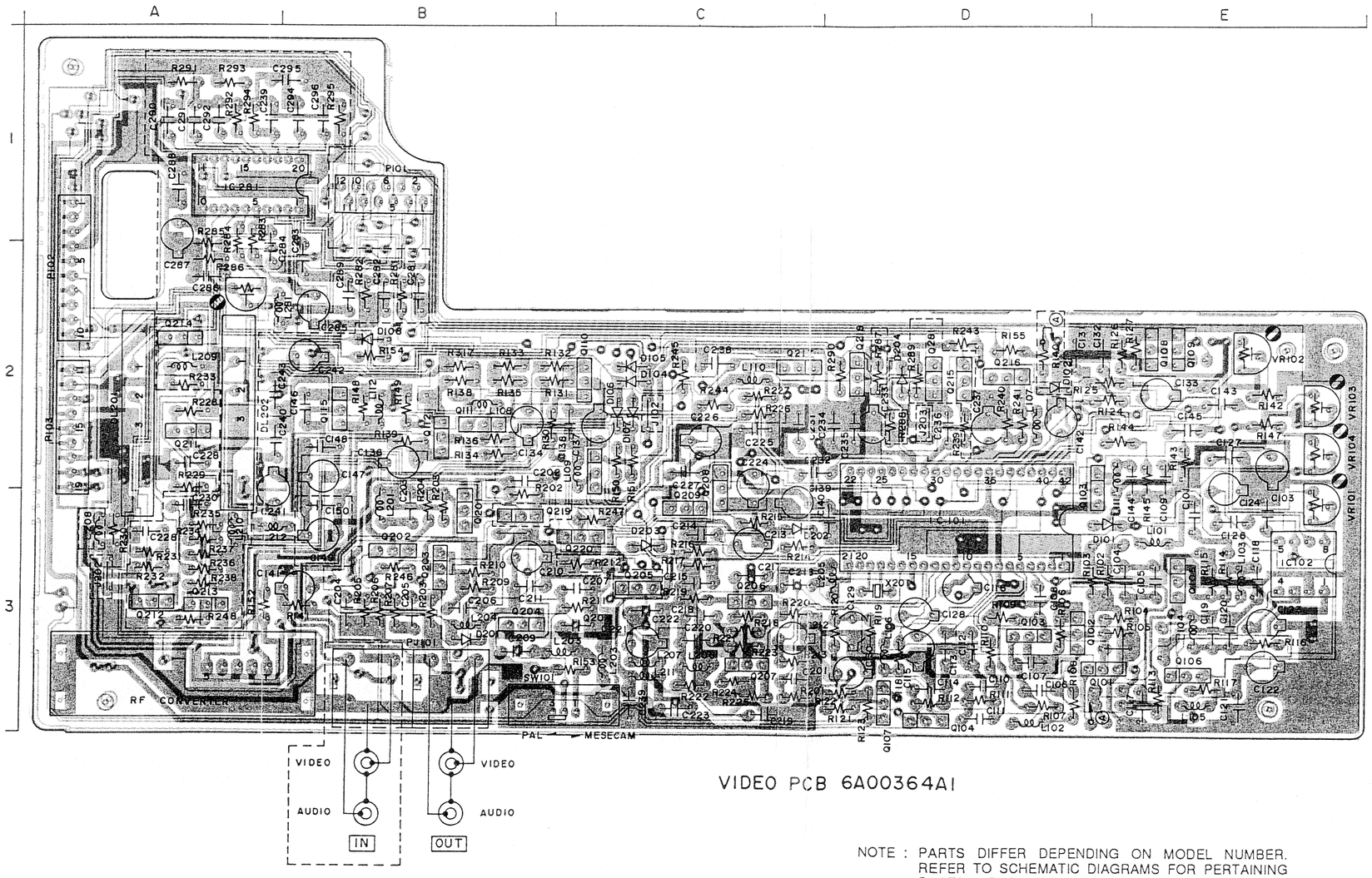
WARNING: ⚠ INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY. REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

AVERTISSEMENT: ⚠ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT

NOTE : PARTS DIFFER DEPENDING ON MODEL NUMBER. REFER TO SCHEMATIC DIAGRAMS FOR PERTAINING PARTS INFORMATION.



PRE AMP PCB 6B00956A1



VIDEO PCB 6A00364A1

NOTE : PARTS DIFFER DEPENDING ON MODEL NUMBER. REFER TO SCHEMATIC DIAGRAMS FOR PERTAINING PARTS INFORMATION.

PRINCIPAL PARTS LOCATION

ICS

IC101 ..... D2,3
IC102 ..... E3
IC281 ..... A,B1

CONNECTORS

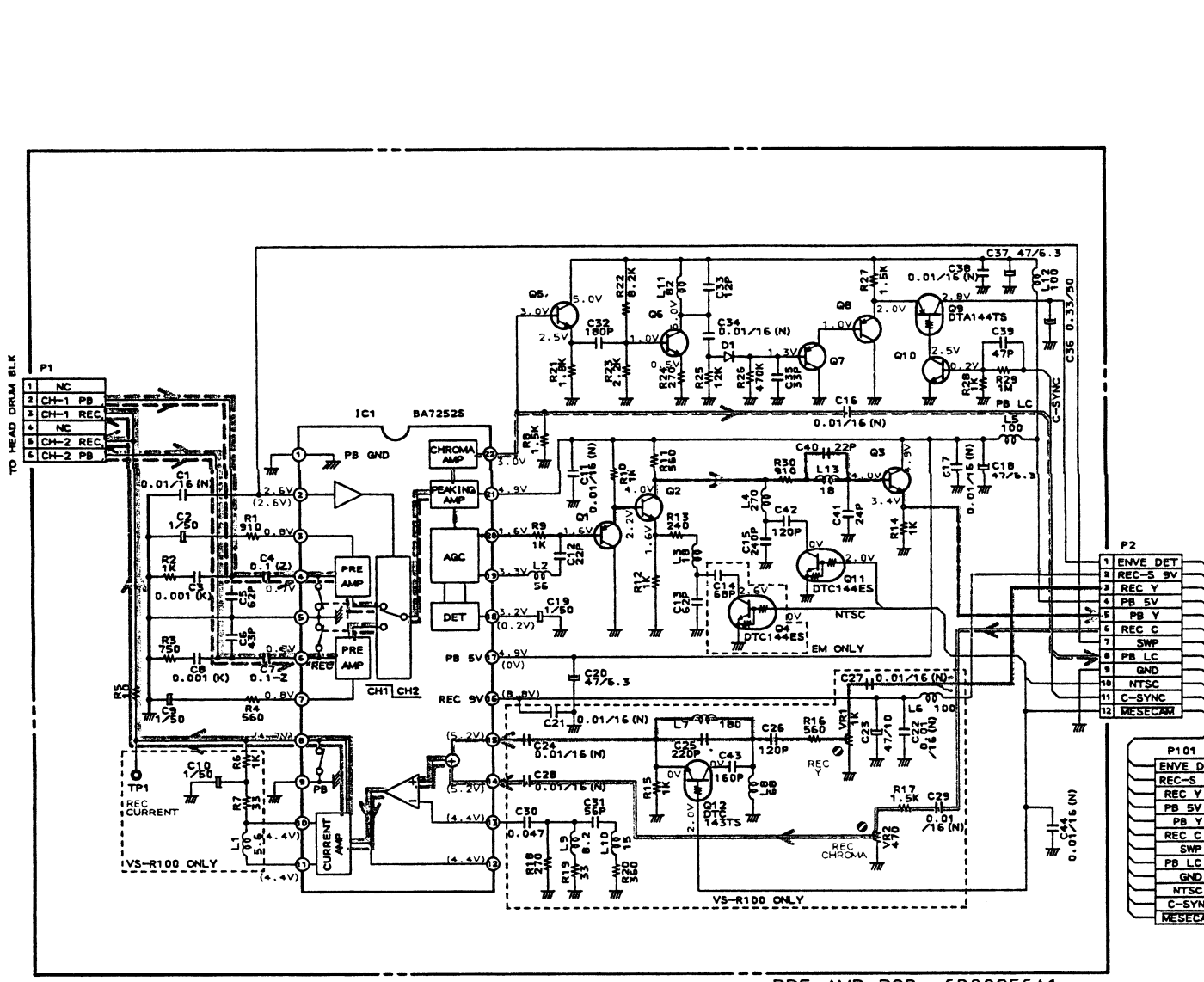
P101 ..... B1
P102 ..... A1,2
P103 ..... A2

COMB FILTERS

DL201 ..... A2
DL202 ..... A2

TRANSISTORS

Q101 ..... E3
Q102 ..... E3
Q103 ..... D3
Q104 ..... D3
Q105 ..... E3
Q106 ..... E3
Q107 ..... D3
Q108 ..... E2
Q109 ..... E2
Q110 ..... C2
Q111 ..... B2
Q112 ..... B2
Q113 ..... E2
Q115 ..... B2
Q116 ..... C2
Q201 ..... B3
Q202 ..... B3
Q203 ..... B3
Q204 ..... B3
Q205 ..... C3
Q206 ..... C3
Q207 ..... C3
Q208 ..... C2
Q209 ..... C3
Q211 ..... A2
Q212 ..... A3
Q213 ..... A3
Q214 ..... A2
Q215 ..... D2
Q216 ..... D2
Q217 ..... C2
Q218 ..... D2
Q219 ..... B3
Q220 ..... C3
Q281 ..... D2

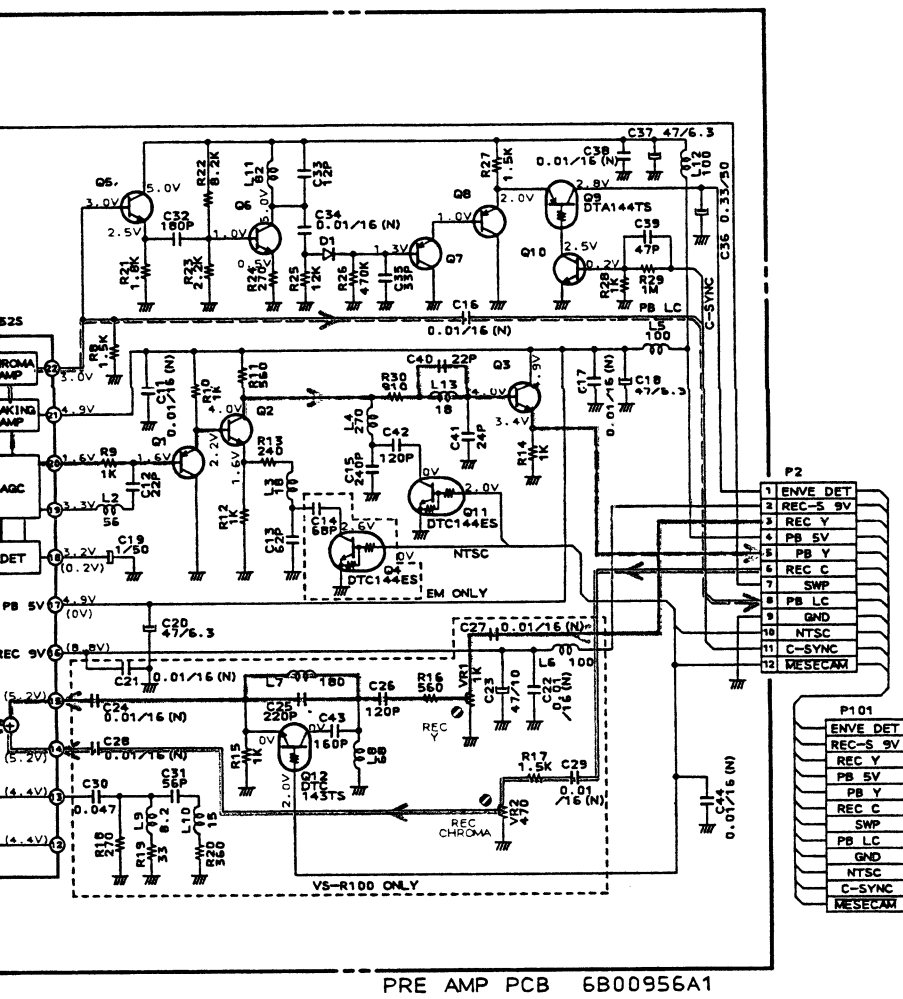


PRE AMP PCB 6B00956A1

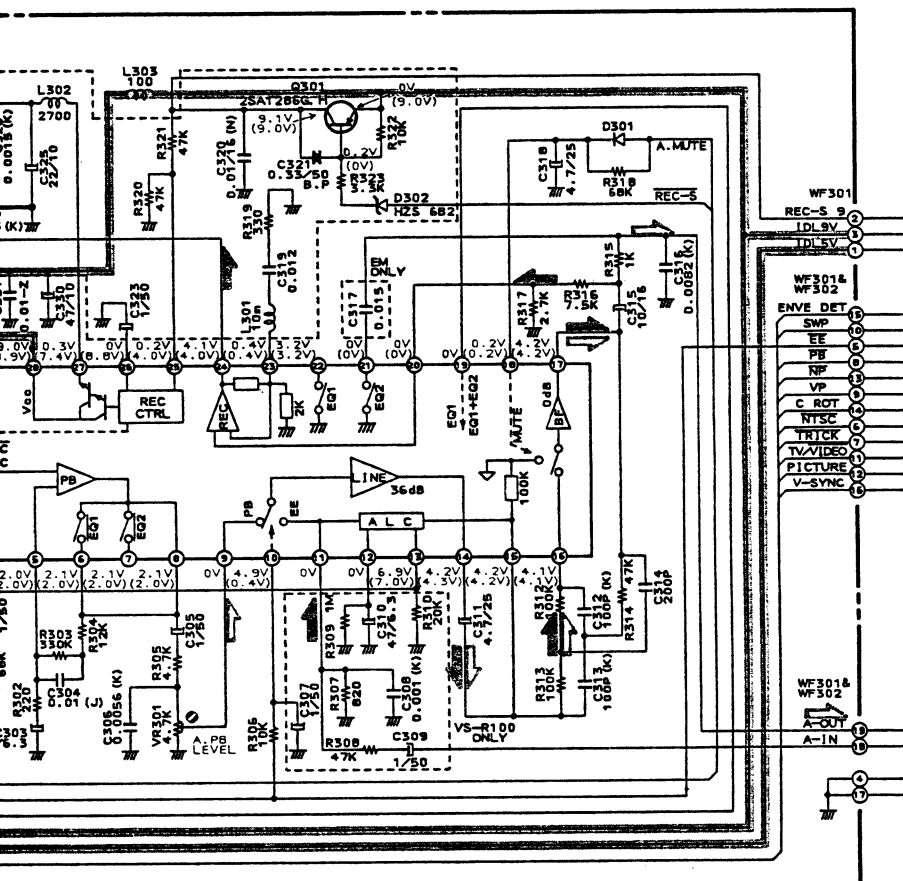
CONTROL/AUDIO PCB (2/2) 6A00364A1

: POWER SUPPLY LINE
: PB Y SIGNAL LINE
: REC Y SIGNAL LINE
: PB CHROMA SIGNAL LINE
: REC CHROMA SIGNAL LINE
: PB AUDIO SIGNAL LINE
: REC AUDIO SIGNAL LINE

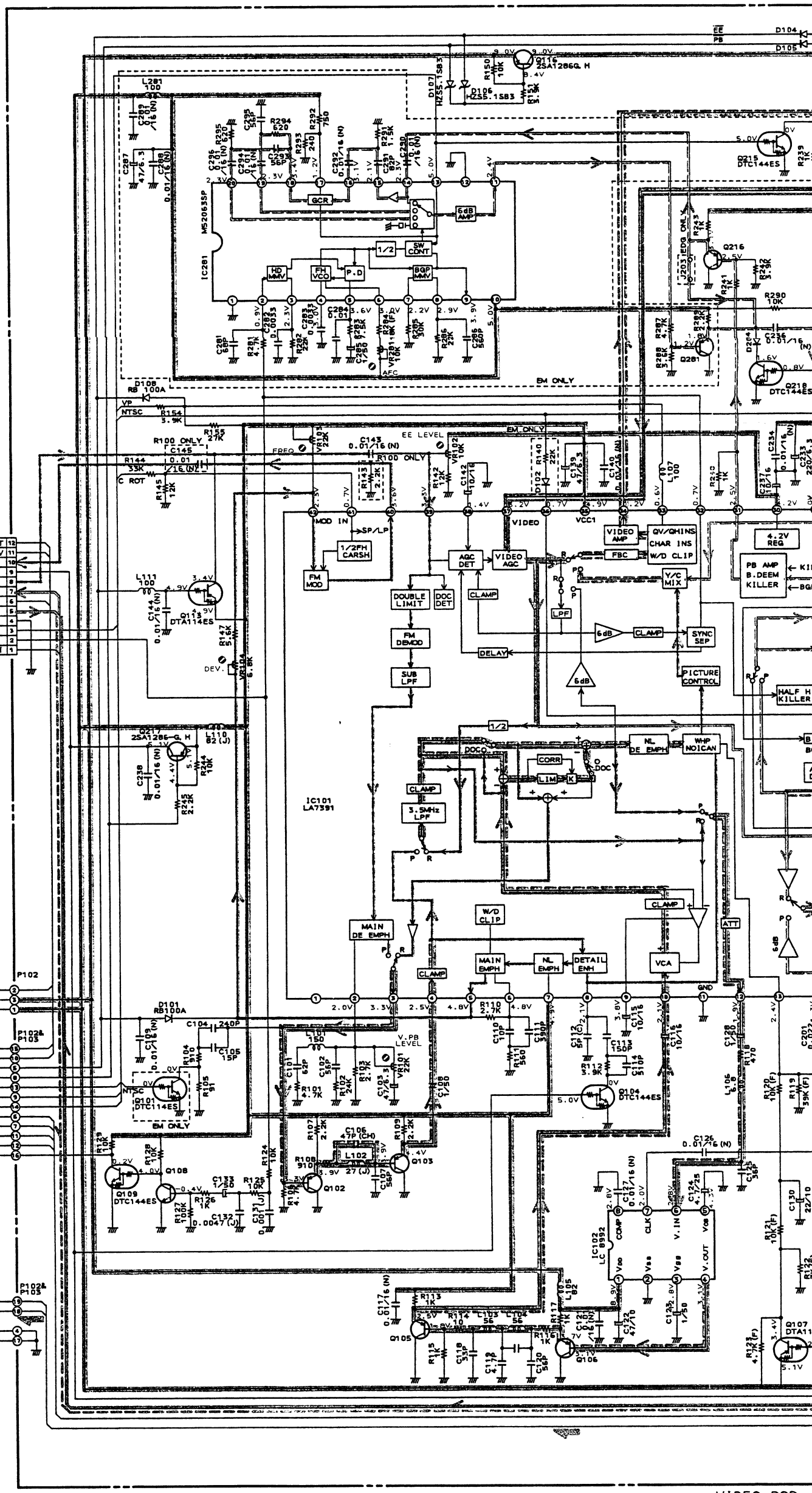
NOTE
UNLESS OTHER
ALL RESISTOR
ALL CAPACITO
ALL INDUCTOR
ALL DIODES A
ALL TRANSIST



PRE AMP PCB 6B00956A1



CONTROL/AUDIO PCB (2/2) 6A00364A1



VIDEO PCB

: POWER SUPPLY LINE
: PB Y SIGNAL LINE
: REC Y SIGNAL LINE
: PB CHROMA SIGNAL LINE
: REC CHROMA SIGNAL LINE
: PB AUDIO SIGNAL LINE
: REC AUDIO SIGNAL LINE

NOTE
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ALL RESISTORS IN OHMS 1/4W (J)
ALL CAPACITORS IN μF 50WV (K)
ALL INDUCTORS IN μH (K)
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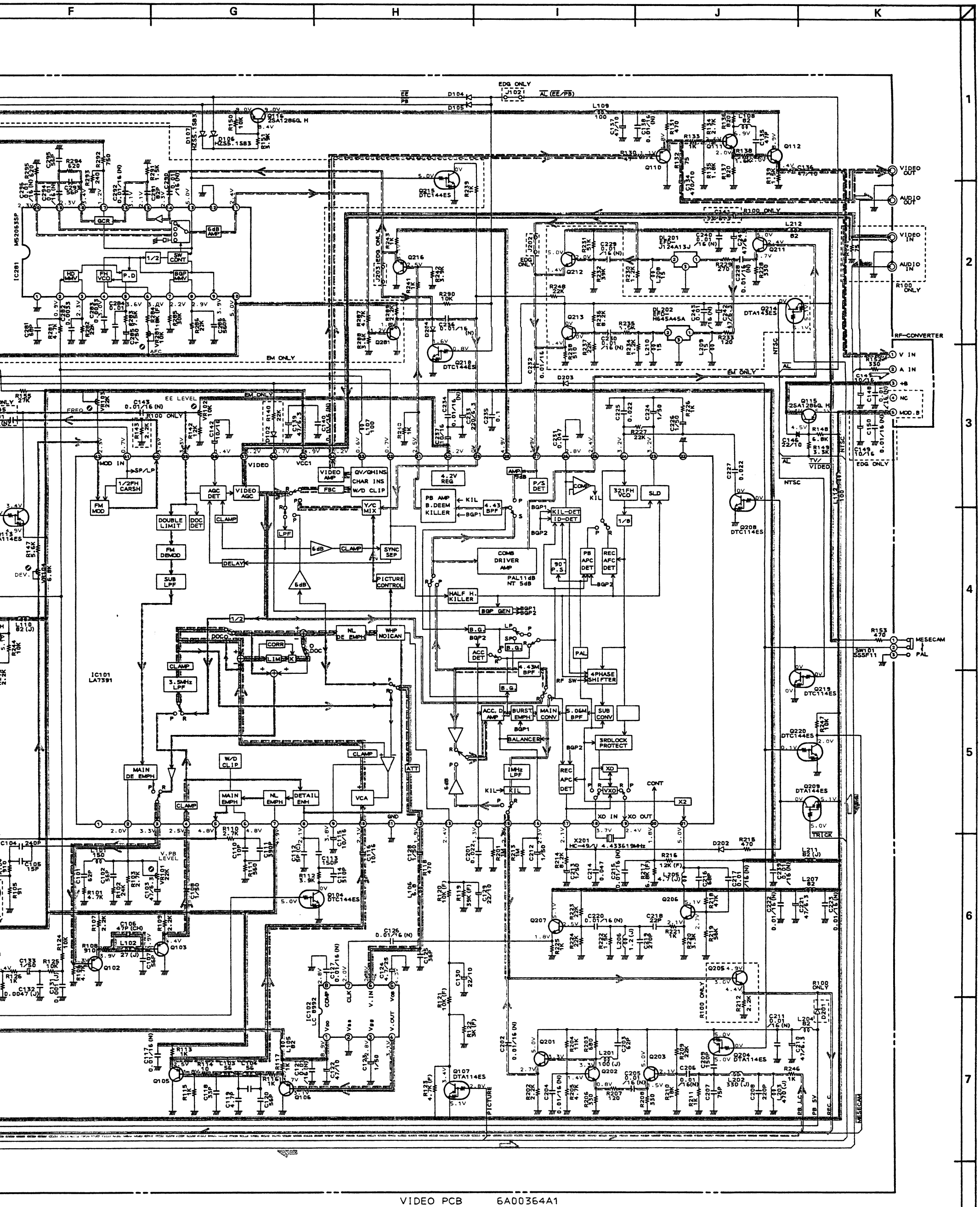
ALL TRANSISTORS ARE 2SA1317 (PNP) OR 2SC3330 (NPN)

INDICATED VOLTAGES WERE MEASURED DURI
( ) : REC MODE



VIDEO PCB 6A00364A1

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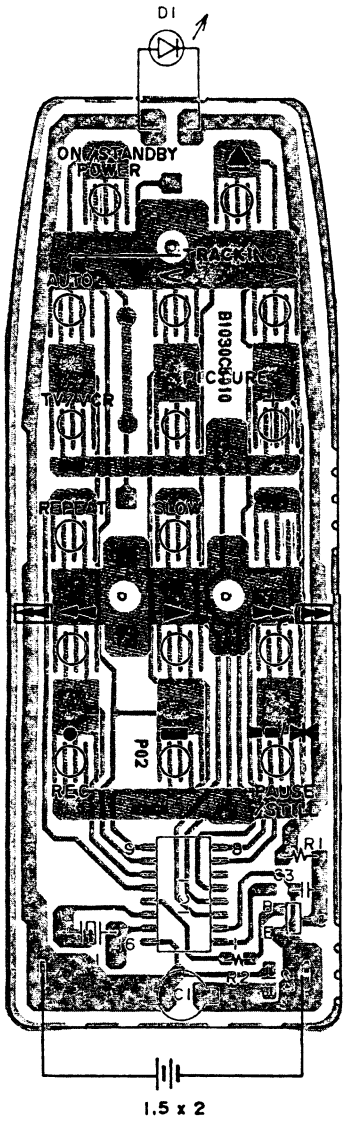
ALL INDUCTORS IN μH (K)
ALL DIODES ARE 1SS131
ALL TRANSISTORS ARE 2SA1317 (PNP) OR 2SC3330 (NPN)

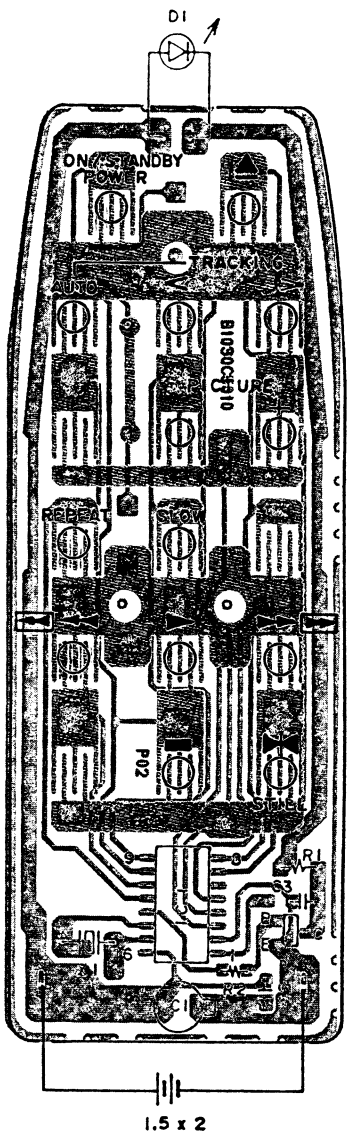
INDICATED VOLTAGES WERE MEASURED DURING PB MODE.
( ) : REC MODE

VS-P100EM
VS-R100EM/EDG
VIDEO/AUDIO/PRE AMP SCHEMATIC DIAGRAM

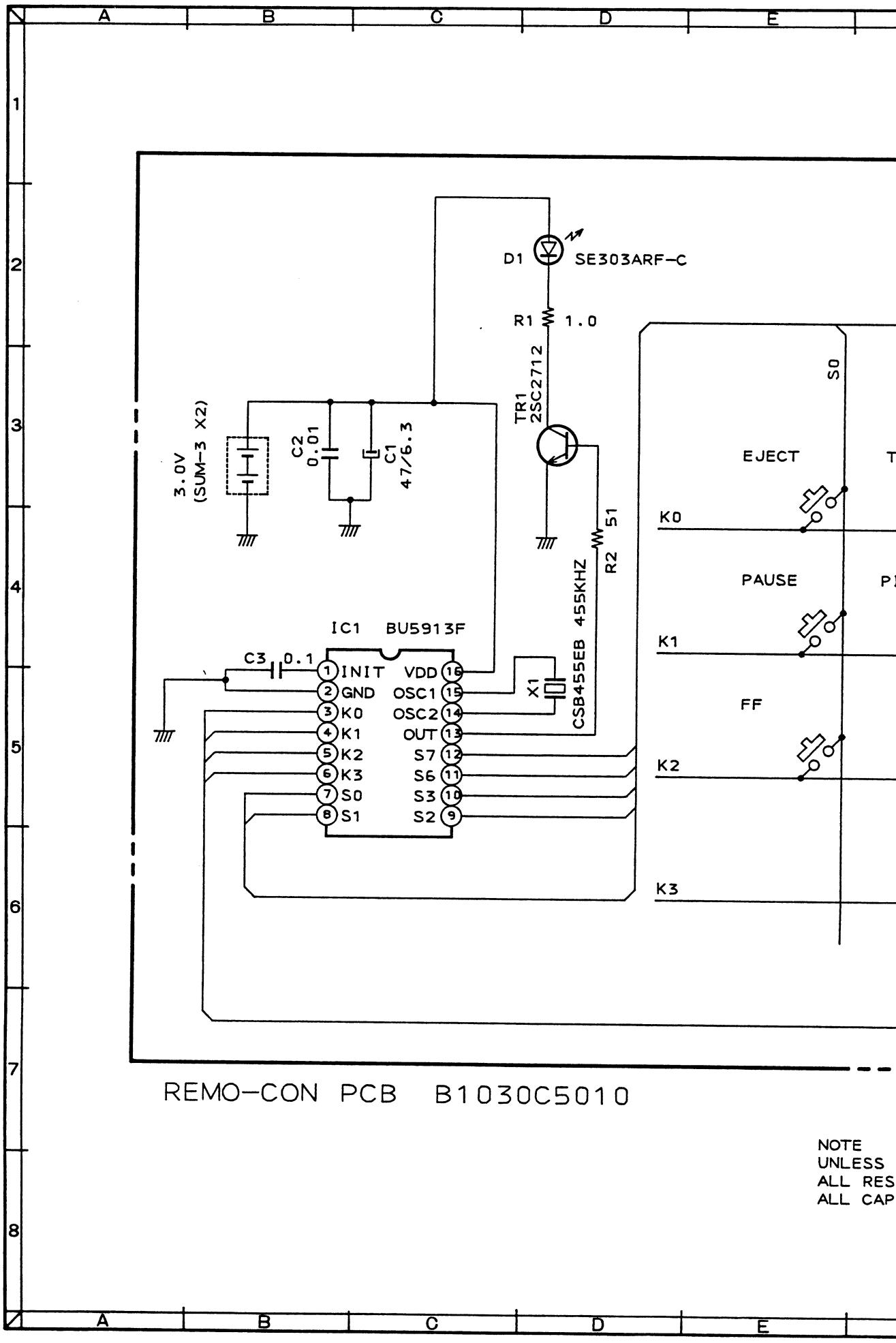
No.4-3 VA03303M
A0



REMO-CON PCB
B1030C5010
(RC-V21E)



REMO-CON PCB
B1030C5010
(RC-V20E)



REMO-CON PCB B1030C5010

NOTE
UNLESS
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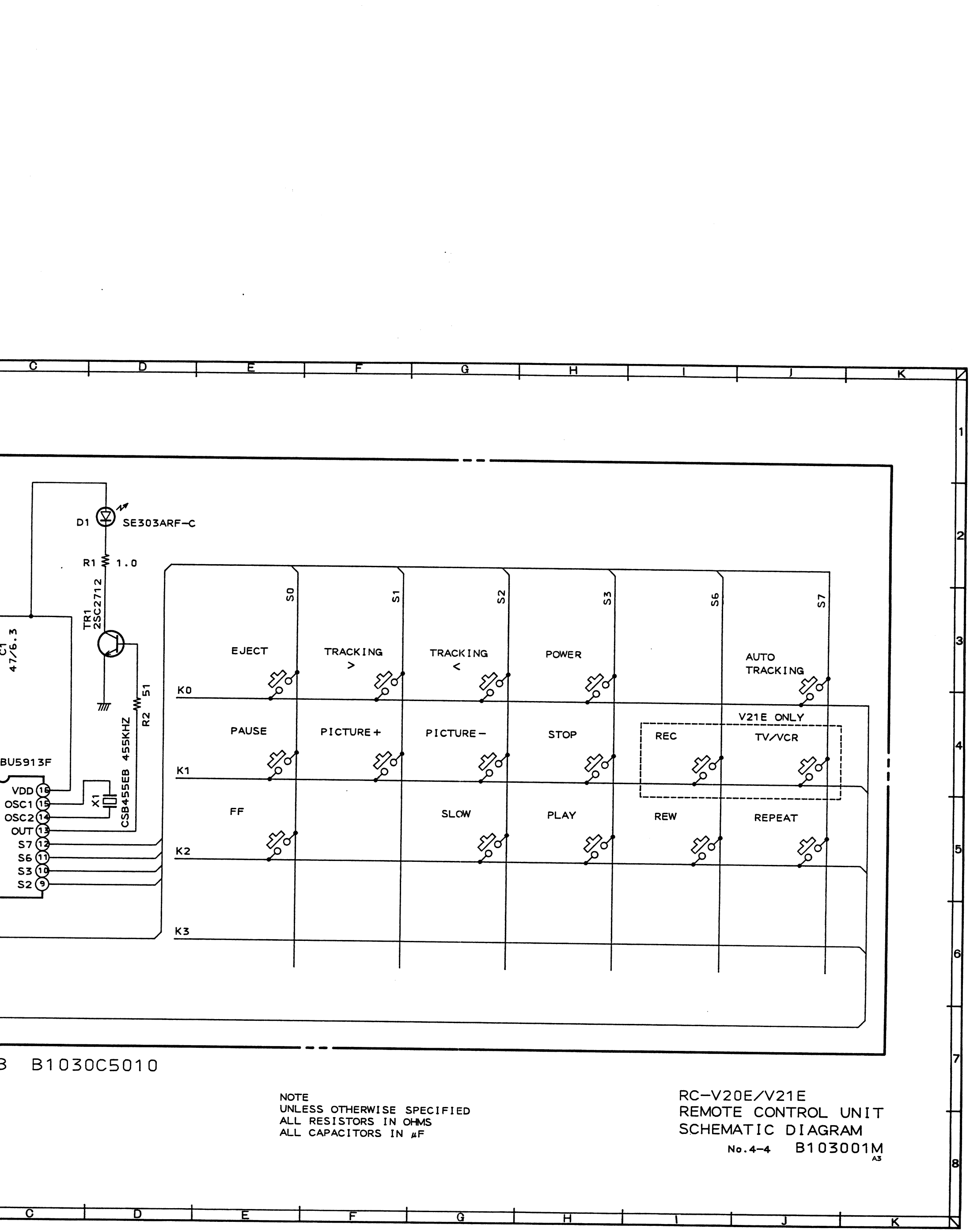
ALL CAP



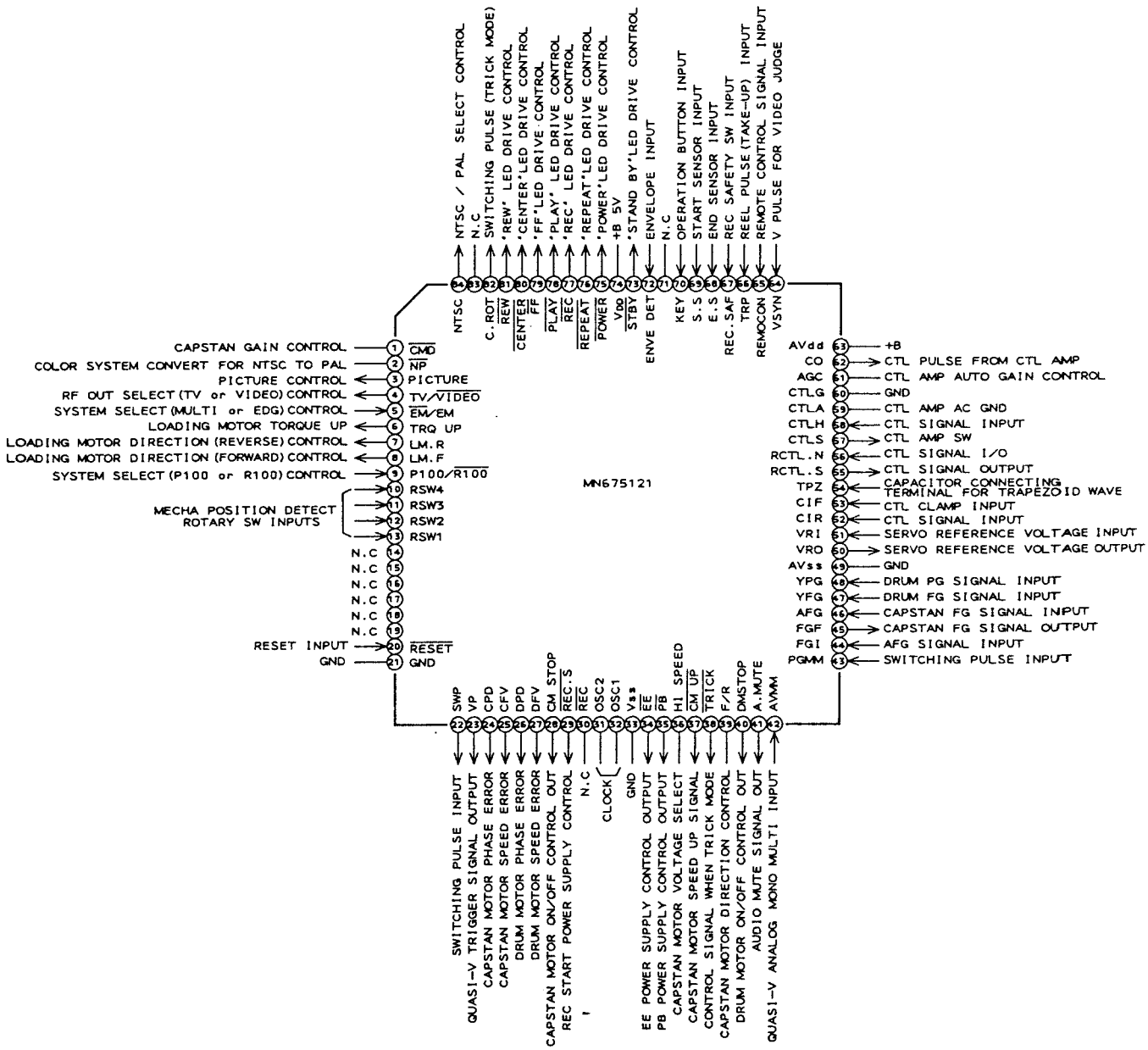
B1030C5010

NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS
ALL CAPACITORS IN μF

RC-V20E/V21E
REMOTE CONTROL UNIT
SCHEMATIC DIAGRAM

No.4-4 B103001M
A3

MN675121 (SERVO & SYSCON MI-COM)



ABBREVIATIONS (VIDEO)

ABBREVIATION	EXPLANATION	ABBREVIATION	EXPLANATION
A	Audio or Analogue	MOD	MODulator
AC	Alternating Current	MRS	Motor ReverSe
ACC	Automatic Color Control	NG	Noise Gate
A/C	Audio and Control	NICAM	Near Instanteneous Compand Audio Multiplex
ADJ	ADJust (ment)		
AFC	Automatic Frequency Control	NON-LIN	NON-LINear
AFT	Automatic Fine Tuning	N.T.S.C.	National Television System Committee
AGC	Automatic Gain Control	OSC	OSCillator
AH	Audio Head	PAL	Phase Alternation by Line
AL	ALways (voltage)	PB	Play Back
ALC	Automatic Level Control	PCB (P.C.B)	Printed Circuit Board
A-SW.P	Audio SWitching Pulse	P-COM	Phase-COMparator
A-MUTE	Audio MUTE	P DOWN	Power DOWN
ANT	ANTenna	PG	Pulse Generator
APC	Automatic Phase Control	P.I.P	Picture In Picture
ASSY	ASSemblY	PL, PLG	PLunger (PLunGer)
BAL	BALance	PRG (PGM)	PRoGram (ProGraM)
B DOWN	Break DOWN	PU	Pick UP (head, pulse)
BGP	Burst Gate Pulse	PWR	PoWeR
BLK	BLocK or BLacK	Q	Quality factor
BPF	Band Pass Filter	R	Right
BU	Back Up (voltage)	RAM	Random Access Memory
B/W	Black and White	REC	RECord
C	Chroma or Color	REF	REFerence
CCD	Charge Coupled Device	REF-V	REFerence Vertical signal
CCIR	Comité Consultatif International des Radio communications	REG	REGulator
		REV (REVW)	REView (REVieW)
CH (ch)	CHannel (channel)	REW	REWind
CLK	CLocK	RF	Radio Frequency
CM	Capstan Motor	ROM	Read Only Memory
CN	CoNnector	R.S SW	Record-Safety SWitch
COMP	COMParator	RST (RES)	ReSet (RESet)
CSW	Cassette SWitch	RVS	ReVerSe
CSYNC	Composite SYNC	S	Sensor, Shield
CTL	ConTrol	SAW	Surface Acoustic Wave
CUE	CUE	SC	SimulCast
DAC	Digital to Analog Converter	S CLK	Serial CLocK
DC	Direct Current	SECAM	SÉquentiel Couleur À Mémoire
DEMOD	DEMODulator	S & H	Sample and Hold
DET	DETetct (DETector)	SLP	Super Long Play
DL	Delay Line	SP	Standard Play
DM	Drum Motor	SPD	SPeeD
DOC	Drop Out Compensator	SRP	Supply Reel Pulse
D.P.E	Drum Phase Error	SRV	SeRVo
D.PG	Drum Pulse Generator	SOW	Sync On Word
EE	Electronic to Electronic	STBY	STandBY
EF	Emitter Follower	S.VHS	Super VHS
EMPHA	EMPHAsis	SW	SWitch
ENV	ENVelope	SW'NG	SWitchiNG
EP	Extended Play	SWP	SWitching Pulse
EP ROM	Erasable Programmable ROM	SYNC	SYNChronize
EQ	EQualizer	T-AUDIO	Tuner AUDIO
FE	Full track Erase	TPZ (TRAPE)	TraPeZoid (TRAPEzoid)
FF	Flip-Flop or Fast Foward	TRK	TRacKing
FG	Frequency Generator	TRP	Take up Reel Pulse
Fig	Figure	T/U	Take Up
FLD	FLuorescent Display	TV	TeleVision
FM	Frequency Modulation	UHF	Ultra High Frequency
Fo	resonance Frequency	UNR	UNRegulated (voltage)
FREQ	FREQuency	V	Vertical or Video
GND	GrouND	VASS	Video Address Search System
H	Horizontal	VCO	Voltage Controlled Oscillator
HP	Horizontal (sync) pulse	VH	Video Head
HPF	High Pass Filter	VHF	Very High Frequency
HQ	High Quality System	VHS	Video Home System
IC	Integrated Circuit	VIF	Video Intermediate Frequency
ID	IDentification	VISS	Video Index Search System
IDL	IDLe (Voltage)	VJ	Video Judge
IMS	Interactive Monitor System	VM	Voltage for Memory
INS	INSert	VOB	Video On Blank
INV	INVerter	VOW	Video On Word
L	Left	VP	Vertical (sync) Pulse
LED	Light Emitting Diode	VPS	Video Program System
LIM	LIMitter	VPT	Video Programming by video Text
LM	Loading Motor	VT	Voltage for Tuning
LM STP	Loading Motor STop	WHT	WHiTe
LP	Long Play	Y	Luminance
LPF	Low Pass Filter	2H	2 Hour (SP)
ME-SECAM	Middle East SECAM	4H	4 Hour (LP)
MI-COM	MIcro COMputer	6H	6 Hour (SLP/EP)
MM	Mono-stayble Multi		